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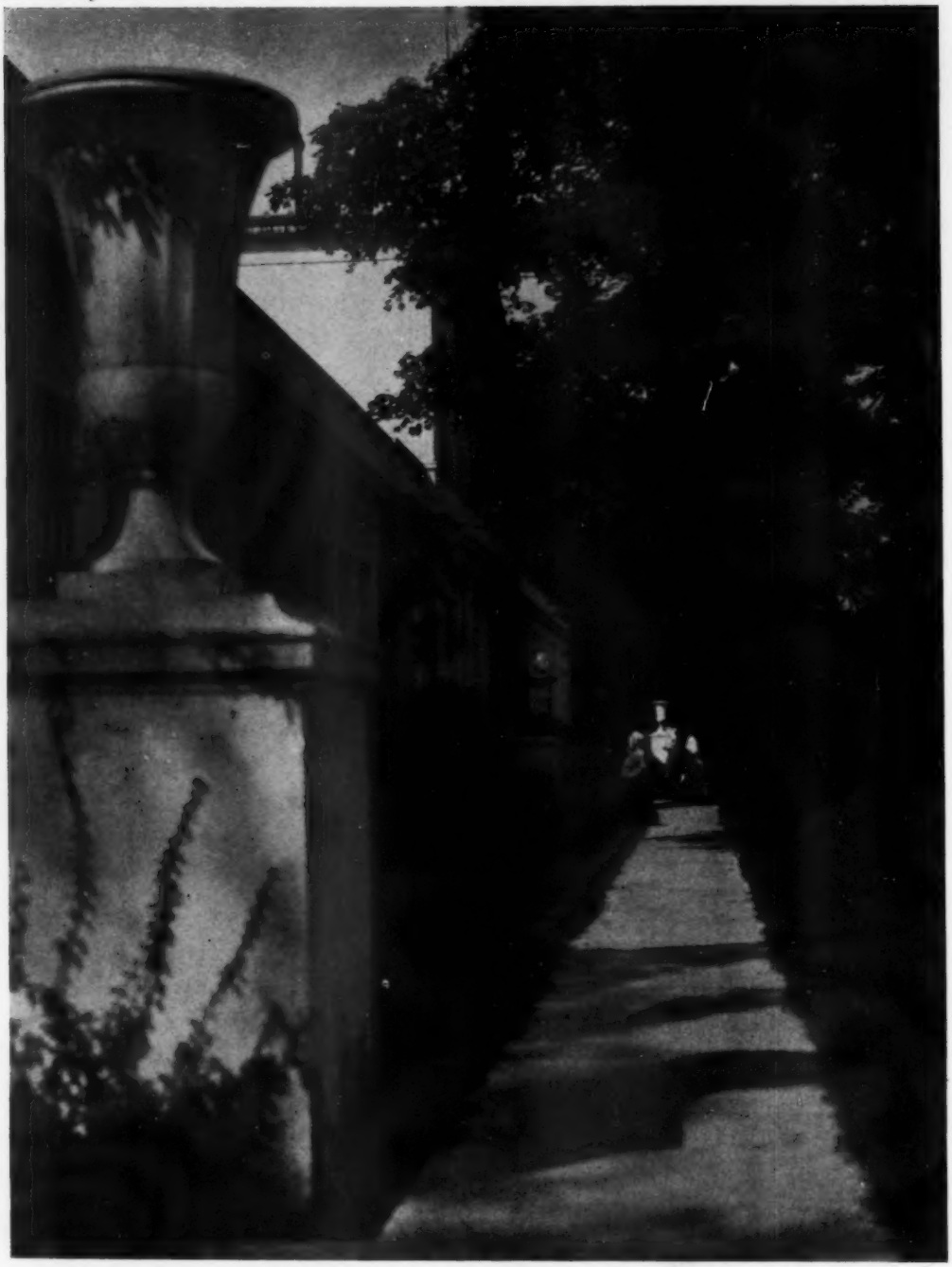

PATH ALONG THE FRONT OF THE SCARBORO, N. Y., SCHOOL

WELLES BOSWORTH, *ARCHITECT*

# THE AMERICAN ARCHITECT

VOL. CXV WEDNESDAY, APRIL 2, 1919 NUMBER 2258


# The Scarboro-on-Hudson School

WELLES BOSWORTH, *Architect*

SCARBORO-ON-HUDSON enjoys the unique distinction among all the stations in the suburbs of New York of being without shops, saloons or buildings of any kind to indicate a settlement, except those belonging to the station itself.

On alighting from the train one is confronted by a steep bank of goodly trees, and the road winding up a hill suggests nothing but country life remote from town. This road is bordered on the right by a beautiful old estate belonging to one of the most remarkable men of the day; a man whose power of imagination is strongly reinforced with self-reliance and aggressive energy to carry out his mental visions, a self-made man in the best sense of the word, and one whose abilities and energies have brought into first-hand acquaintance the best that the world has produced both in personality and in things.

STATUE OF MOGLI FOR FRONT OF SCARBORO SCHOOL
RUDULF EVANS, *SCULPTOR*

Frank A. Vanderlip needed to consult no one when it came to the education of his children. He knew what they ought to be taught and how, in order to prepare them for useful and happy lives. Beginning from the bottom up, he formed a group of the right sort of neighbors, building houses for friends who had children on a near-by tract of land laid out in attractive house lots. This assured to his children the right kind of playmates to grow up with.

He then remodelled an old studio building into a school. This was soon outgrown, but it had served to illustrate the success of the experiment to such an extent that Mr. Vanderlip then decided to build *de novo* an ideal school for children.

Situated near the Albany highway, on a sloping piece of ground such that the rear elevation has two stories while the front has only one, the building spreads out in plan like a letter T inverted, as it were ⊥, the vertical part being occupied by a fully equipped theater. Class rooms occupy the wing on the left, a gymnasium and laboratories the right wing, and a library and teachers' room the second story of the central portion.

The wings are designed with a clerestory treatment over the central corridor letting sunlight into the class rooms on the north side, as well as giving them better ventilation. At the outer end of the left wing there is a kitchen and dining room for those children who come too far to return home for luncheon, and a garage is worked in on the rear of the gymnasium, below the dressing rooms. A workshop equipped with all sorts of carpentry and manual labor appli-

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ances occupies the basement at the rear of the class-room wing.

The building, which is built of stucco on terra cotta blocks, faces northeast and is seen on the river side of Broadway, as the highway is called, half concealed by a high stucco wall with an interesting gateway.

Classic in style, it is highly academic and expressive of the school idea both in mass and detail. Its pediment rises above two stories of Greek columns—Doric and Ionic. Niches in which statues are to be placed flank the entrance portico. One of these, representing Kipling's boy hero Mogli and his panther, with great beauty of line and character, has just been completed by Mr. Rudulf Evans, Mr. Vanderlip's intimate friend and protégé. The Theater, directly opposite the entrance, is reached through the altogether charming vestibule with French-gray walls, black and white marble floor, and panels filled with plaster casts from the Parthenon friezes, with hanging light fixtures of alabaster supported by chains of antique green bronze. The spirit breathed by this foyer is cool, fresh, strikingly architectural, yet so simple that its design is comprehended at a glance—the very "type parfáit" of vestibule treatment, as is well set forth in that admirable work on interior decoration by Edith Wharton and Ogden Codman. As one enters the theater he is surprised to find it so large and entirely "professional." There are seats for three hundred spectators. The stage is 25 feet deep and is provided with all the modern equipment of mechanical devices, lighting features, etc., so that regular companies of actors may be

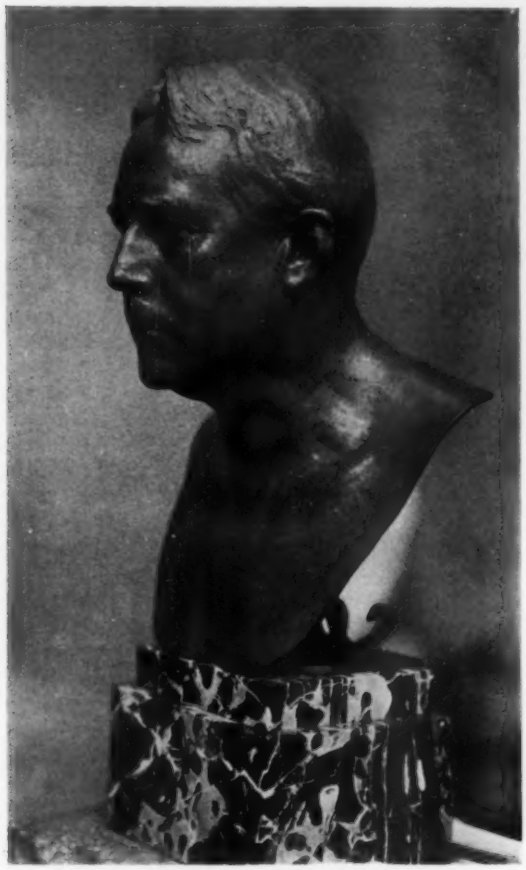
A GLIMPSE OF THE ENTRANCE PORTICO

CLASS ROOM END OF SCHOOL

SWIMMING POOL NEAR THE SCHOOL

ENTRANCE DOORWAY, LIBRARY OF FRANK A. VANDERLIP AT BEECHWOOD
WELLES BOSWORTH, *ARCHITECT*

accommodated as well here as in their city theaters. Among others, the original cast of the "Yellow Jacket," that immortal little play, have come to this stage while no less a genius than Paderewski played at its dedication. Mr. Vanderlip conceived that the



BUST OF FRANK A. VANDERLIP
RUDULF EVANS, *SCULPTOR*

theater, being perhaps the greatest single educational influence in the world at large, could not be omitted from the experience of a child's schooling. Each pupil is obliged to do his turn on the stage —before all the other children as audience—at frequent intervals. How many of us have suffered from the lack of such an experience in our early years when for the first time we were called upon to face an audience in unfamiliar surroundings!

A moving picture booth is arranged over the entrance in the rear of the auditorium and once a week the neighborhood is entertained with a regular "movie" program—while of course the gymnasium is adapted admirably for dances as well as basket ball or other indoor games. Out of doors, the land slopes down steeply in the rear, forming a beautiful amphitheatre bordered by a picturesque ravine and running brook. This gully is spanned by a rough stone bridge of single arch, reflected in the pool below and shaded by fine old trees of unusual magnitude and variety.

THE GOLDEN HOUR
STATUE IN LIBRARY OF MR. VANDERLIP
RUDULF EVANS, *SCULPTOR*

One can hardly imagine more perfect conditions for children to grow up in. There are tennis courts and a swimming pool, and every modern method is brought into play to train these boys and girls to a full and balanced development of both body and mind.

Mr. Vanderlip is planting seeds of good citizenship which will go far to bulwark as also to extend the boundaries of civilization.

GEORGE ELLING.

# Architecture After the War

## IV—What Is An Architect?

*By* C. H. Blackall, *F.A.I.A.*

We know what he was before the war: an idealist, an individual whose mission was to make over the world in what he considered the most beautiful guise, a man entrusted with large opportunities coming in often faster than he could master them and striving his best to keep up with the tremendous increase in the requirements and the possibilities of modern construction, a dreamer and strictly a professional man. It was a splendid ideal and all honor to those who strove so nobly to uphold this exalted plane, but that the architect of after the war is a different man is evidenced on every hand. The point of view is changed not only because of the war but because it was in process of changing before. The profession as a whole set its face against change and looked frowningly upon those who from limited equipment or limited choice did not measure up to the individualistic, imaginative standard of 1876 and later, and now the question is a very pertinent one and should be scrutinized very closely by all who desire to be in the tide of progress, for progress is the only thing that keeps any profession or calling alive. It is the stirring of the water by the invisible hand which brings healing, growth and prosperity.

In the previous articles the statement has been made that an architect is first of all a business man; second, a constructor, and, third, a dreamer of dreams, or otherwise a designer. There have been those who assumed that because of this triple nature all that was necessary for an organization was for some clever business man with brains and power of organization to get around him some bright young men, divide up the work according to their several abilities, and presto we have an architectural organization. Nothing could be further from the truth than this. An architect must be a business man, but a business man by merely wishing cannot make himself an architect. An architect may and should develop into a business man if only by association, but if we can read at all aright the actual results, a business man unless he has the architectural instinct as a foundation can never develop himself into an architect even by association. Again, we have seen in the past repeated attempts to develop a building organization based only upon engineering experience. Strictly speaking, the engineer's structure may be mechanically perfect, but it is apt to be a mere aggregation of units each possibly perfect of itself but not co-ordinated in a logical, symmetrical whole, thereby failing to be the record of progress and history which is an appanage of architecture. The engineer merely points the moral. The architect should both point the moral and adorn the tale. A structure such as the Brooklyn Bridge which starts out to be merely an engineering work may prove to be pure architecture for the simple reason that it becomes what all good architecture is, orderly creation and arrangement for a distinct purpose and need. And on the other hand architects have made some extremely successful factories which while governed by simple engineering requirements were yet creations. But it has been demonstrated again and again that the start must be from the architectural standpoint. Some years ago a prominent firm of of contractors in New York set out, as they themselves expressed it, to eliminate the architect by doing themselves everything that an architect would do, hiring clever draughtsmen, attending personally to the construction and thinking thereby to leave out a certain amount of friction which seemed to them inevitable and which impeded the most economical results, but as a matter of fact I believe that same firm admits today that the attempt was a failure and that the architect could not be eliminated without at the same time eliminating the architecture. Again, an attempt was made by a very prominent brokerage firm to eliminate the architect by carrying out in the name of the builder all the portions necessary to a finished structure, hiring such architects as they saw fit to carry out their wishes but retaining the real direction, financial, artistic and otherwise, in their own hands. This organization has done some very creditable work but it has not been architecture in the sense in which we mean it as being in any way representative of the aspirations of the people and the clearly defined and simply worked out practical needs. It may be said as a general proposition that the architect is more apt to know when to use the engineer or the business man than either of them knows when he needs an architect. Furthermore, there have been some most lamentable examples of failure directly traceable to the fact that architecture was considered merely as an adornment and not something vital, or that the only vital factors were

the engineering and the business ones. A Court of Honor in a large school group which is so arranged as to disrupt the interrelation of the parts is a hopeless failure. To enter a building expressed as a dome on the exterior with imposing portico before it and then to find oneself in a mechanical laboratory and discover that the dome is a mere useless appanage is surely not an ideal combination of architectural possibilities and engineering or practical demands.

How then do we find that an architect is temperamentally constituted in these days? Of course we have not changed wholly yet. The old régime still endures and there are always to be those who cling to the individualistic ideal of which Ruskin was so strong a champion and which really made possible the condition of the profession today, but if we try to take a dispassionate measure of the architects of today who seem to be doing the best work and are at the same time the most successful in every respect, we find a basis in every case of architectural appreciation, education and development. Whether the architect is one of a firm and devotes himself more exclusively to one department of the work, or whether he is the focus of the organization, the really successful ones are those who are artists by temperament and who have adopted the engineering and the business point of view as means to an end, as adjuncts to a desired consummation and as factors which are indispensable and which must be viewed from a strictly architectural standpoint. We find that the most successful architects today in this country have primarily had the creative faculty, and as far as can be determined by a pretty wide acquaintance in the ranks of the profession, there is not a single architect today who does not owe most of his success to the fact that he is businesslike and knows how to construct. On the other hand, it is equally true that there is not a successful architect in the United States who owes his success only to the fact that he is an artist. We find, too, that organization has counted in the past as a very important factor in the successes and that as a general proposition the architects who are awake to the possibilities of this day and are reaching out to larger fields, to broader horizons and to more perfect success are those who have been able most effectively to balance the three sides of the profession, not letting anyone assume any more than is due relative importance, but viewing them all from the architectural standpoint.

The case of one architectural firm comes to mind as typical of the new tendency in our profession. This firm occupies an entire building with its offices. On the ground floor is a bank which is so directly connected with the work of the architectural firm that though in name they are distinct, in fact the resources of one are ever ready to back up the recommendations and the judgment of the other. In the second floor on one side is an art gallery where the architectural organization can exhibit its own ideas and where also it gathers pictures, furniture, tapestries or works of art which it can reasonably recommend to its clients for certain specific cases. On the other side are the reception rooms of the firm where the clients receive their attention and are encouraged to formulate and present their desires. There is a thoroughly equipped department of accounting, another equally well equipped of inspection and engineering, a large and carefully selected library, and finally the center of the whole organization, the designing department. This firm has done most excellent work and its work has been recognized by the profession and by the public as being of a very high order, and yet a comparatively short time ago its organization would have been looked at askance by the profession and its attitude towards financing and construction would have been condemned, yet this firm constitutes one of the most successful units in the country.

Again, there comes to mind another organization headed by a single architect who in his early days made a distinction for himself as a draughtsman and designer and an artist. His association represents as complete a business and professional equipment as one could wish, with every facility and every convenience and every accessory which would contribute in any degree to making the buildings he undertakes answer fully their best and highest purpose. It goes without saying that everyone would not solve the problem as he or his organization would, but the average of the work turned out by this office is so high and its buildings are so eminently successful that it would be denying the facts to assert that this does not represent the successful architectural effort of the day, even though five years ago his professional standing was not in favor with many of the conservative architects.

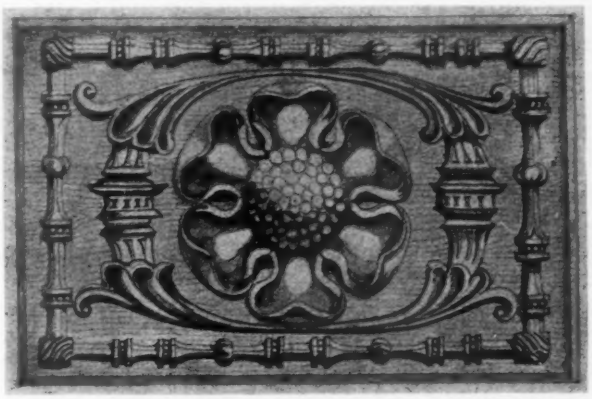
Examples might be multiplied indefinitely but they only serve to show that the architect represents a very different organism than what obtained a very few years ago, and summing up the results of observation, it seems no more than a recognition of existing conditions to say that the successful combination of today is not a union of an architect, an engineer and a prosaic business administrator, who associate themselves chiefly because the architect cannot get a job alone, the engineer cannot do it alone, and the business man can neither design nor construct, though all need the money; but it is the man, or group of men, who, starting with a solid foundation of architectural and creative ability on

the part of all the members, has built up a business organization in a scientific manner and carried it out to success, financially, structurally and architecturally, depending not upon any one branch alone for its success but on the combined product of the individual factors. All architects cannot be great, but the essence of greatness is in all good architecture, and it is this element of imaginative conception wrought out into an efficient, well-rounded development that constitutes the best and most hopeful phase of the architecture of today.

The question may well be asked, is it any better than we had before? Some think it is and others while recognizing the efficiency of the modern viewpoint deny that its result can satisfy or ever produce work equal to the great periods of the past. But surely the present viewpoint is more attractive to the beginner in that it offers a distinct career leading to the highest results. The awards certainly are larger, for no architect can make more than a bare living if he depends upon his own effort; and measured by the highest standards of real service to the community, the modern architect is what the old régime never produced, a factor in civilization, an important element of modern life and a historian of the nation's progress. Architecture has been defined as a mood made permanent. There are many moods in the multitudinous currents of the busy life of today, so different in all its eddies and turns from the quiet, contemplative life of the past, and we make those moods permanent by clothing them in tangible, available envelopes and by fixing them in terms which mean permanence and efficiency. Surely this comes pretty near being good architecture. And, given a professional point of view such as has been intimated in this paper, there seems to be no end to the possibilities of the profession. Great achievements in large undertakings and great successes in the small, intimate work are now equally within our reach. The moulding of public opinion through the mirror which we hold up to it is now our task and will be the rule rather than the exception. Architects are not a privileged class, only a small coterie of mutual admirers who can now be, if they wish, the leaders, the inspirers, the promoters, as well as the constructors and the idealists. Surely this is a program well worth following out and building upon, and whatever we may think of it, whether we agree it is right or wrong, whether we sigh for the old days, we cannot get away from the actual facts that architecture and the architect today carry out the program which has been outlined and that the successful architect is the man who has the widest grasp upon the many sided demands of his profession.

And with it all there still remains the ideals, but they are not lowered or cheapened by the associations with business and science. Rather they are made higher and more inspiring, and, as never before, the profession with its many sidedness can take to itself the words of John Ruskin, who wrote for an imaginative period when it was the rule to think and act in hyperboles and when common sense and hard, practical requirements were brushed aside as derogatory to a professional man, but words which are just as applicable today to the kind of work which, with all its opportunities and limitations, its hope and its necessities, can now be realized by the profession:

"When we build, let us think that we build forever. Let it not be for present delight nor for present use alone. Let it be such work as our descendants will thank us for, and let us think, as we lay stone on stone, that a time is to come when those stones will be held sacred because our hands have touched them, and that men will say as they look upon the labor and wrought substance of them, 'See! This our Fathers did for us.'"



# Developing the American Craftsman

THE words "industrial art" imply the relation of art to industrial or mechanical production, which in daily parlance signifies the relation of appealing form and color to utility. They mean that usefulness, while remaining an essential objective, is shorn of its ability to contribute to cultural progress if it is not made sufficiently attractive to contribute pleasure to human environment. This relation between industry and art is embraced in the word "design," a type of thinking that American have been too ready to let others do for them these many years.

While counting upon mass production as a quick road to large figures on our national ledger, we have not been far-sighted enough to discover that mass alone becomes an obstacle in all articles which constitute our domestic surroundings, if a constant and consistently growing appeal does not form a part of its reason for being. The exact value to be placed upon the material and the design we have for many decades gauged incorrectly. The gloss of surface carving will not pass for design. The gimcrack assortment of motives which is the merest flimsy cloak for the structural conception identical in all styles unless related to every guiding line in the piece; the gathering of suggestion repeatedly from books—and usually from poor books or designs themselves copied from others of their own ilk without recourse to originals—brings about a stalemate in design. Execution improves, design lags.

Execution, methods of manufacture, cannot supplant design; they can only facilitate design. Without design they serve requirements of utility only, and might as well be diverted to merely mechanical objectives in which appeal to the mind through the eye or sense of touch is the least consideration. Objects of industrial art without an adequate inspiration in design serve their function as well as a piano played when out of tune.

American business men are known to be shrewd, yet their shrewdness is too momentary in its application. In the great field of the industrial arts commanding an outlay of $500,000,000 each year these very business men have not taken thought for the future. They wail for the designers that Europe has recalled, they lament the fate of American craftsmanship, and turn around to make just what they have made before with a minimum improvement on the plea that design is too expensive, whereas correct reasoning would show that good design is an investment costing less than any other single factor in industrial arts production when considered in terms of ultimate cash returns.

There is but one help for manufacturers in the industrial arts field—only one: education. They must educate designers, they must establish schools for training designers, they must realize that design is a cash asset, an all-for-business investment. They must come to the conviction that design means quality, and that only good design commands a good price. Refinement is the index of taste, and taste is the keynote of American industrial advance. Education points out the difference between the artistic progress of France and the industrial art stalements of America.

In many branches of life men have seen the salvation of their business enterprises in the training of those to whom they pay salaries. In the industrial arts field the voice of not one manufacturer has been heard in favor of schools to teach designers. Rather a million dollars for mass output to achieve large selling figures now than five thousand dollars toward a school whose human product will make the one million into ten within a few years.

Schools we must have—in every branch of industrial art production we must have school training as a feeder for the factory of the future. Designers will surely always come up from the ranks, but if there are potential designers in the ranks of factory hands, they deserve the chance to make the journey toward a designer's salary by the line of least resistance.

The school is a part of the factory, and the fact that it is not under the same roof with the machinery of production does not alter this truth. To hesitate to train designers to turn out the best for the American market is to waste material, to waste effort, to waste money, to waste precious time as we have already lost it depending upon Europe so long.

And while the schools are being put under way, the educational values of museums must not be ignored. Practically all of our museums maintaining collections in any of the industrial art fields have made many efforts to reach designers, to appeal to manufacturers, to establish the business value of design. To develop design without the use of the museum is to study chemistry without the laboratory.

RICHARD F. BACH.

# Why Not Build Now?

*By* J. C. MURPHY, *Architect*

MAY we not soon have an end to the dreary song we so often hear that one cannot afford to build because the cost of building is too high? How men, whose judgment is considered sound in business affairs, can hope that the cost of building will go back to the abnormally low pre-war level when they do not expect other prices to return to that level, is hard to understand.

Shoes are high. Why? Because leather is high. Leather is high because cattle are high. Cattle are high because feed is high. Feed is high because the things the farmer must buy are high. All are high because labor is high. Labor in turn is high because shoes and food and clothing are high. We are told that none of these prices can be lowered. We try to trace this to the beginning only to find that we have an endless chain. The cost of building is but a link in the industrial chain and rises and falls with the other links. It takes no more days of labor, no more barrels of cement, no more bricks, no more pounds of steel, no more feet of lumber to build now than it took before the war. Lumber and steel and bricks and cement take no more—if as many—days of labor to produce now than they took then.

We hear men say that they will not build now but will wait until prices are lower. Is the cost of building so high? Carefully compiled statistics show that these costs, except the high pressure building done for certain war needs where speed only was considered, have been relatively lower than anything else.

Would one who desires to build now gain anything by waiting for prices to go down? I think not. Prices for building can no more go back to the old level than can prices of other commodities. Only in case all business goes to the bad will prices drop. Then there will be fewer jobs than men to fill them, more goods made than can be consumed. As men must have work, the old and unrepealable law of supply and demand will assert itself. You can no more stop its operation by artificial restraints and combinations in the matter of labor than you can by combinations or otherwise maintaining high prices of food or clothing or buildings or any other thing. For the same reason down will go the prices of securities. Dividends on stocks will be cut or passed, and when the price of building reaches the low level your investor would have it reach he will find that his stocks or his goods have reached a corresponding level. It will take as many shares of stock, as many pairs of shoes, as many wagons, as many bushels of wheat or barrels of flour to build the house then as it will take to-day. So where is the gain?

Prices are relative and in the last analysis are a matter of barter. To build, one must sell some of the goods he makes or trades in or some of the securities he owns, to get the money with which to build. If prices are high he sells for a higher price. If prices are low he gets less for his goods and pays proportionately less for his building. Relatively, he is no richer or poorer. To take a concrete example. If I desired to build a house that today would cost $12,000 I would have to sell one hundred shares of L. & N. Railroad stock to pay for it. I might think the price of building too high and decide to wait. I may find in a few years that I can build the same house for $9,500, and decide to build. When I try to sell my L. & N. stock I find that I can get only $95 the share for it, so I still have to sell one hundred shares. What have I gained? This has actually happened and will happen again with high-class stocks like L. & N. Railroad. With stock of lower class the shrinkage in value is much greater.

No one of sound judgment hopes that the thing he has to sell will remain high while the things he wishes to buy will go down. By chance this might happen once in a while in isolated cases, but it is poor dependence. Speculating on margins sometimes brings large profits, but generally the result is failure, and if one makes a practice of this kind of speculation failure is certain. Your careful investor takes no gambler's chances, and in the end he wins.

It has been said that real estate is not a good investment because rents do not go up with other values and you cannot sell real estate for more money when building is high than when building is low. That this is not true has been shown in this city, Louisville, Ky., in a most forcible manner. Rents have risen, the values of homes and desirable real estate have advanced. Because some property does not increase is no sound argument to the contrary. If I own real estate in a town that is going backward or in a backward portion of a town that is going forward I am no worse off than if I own stock in a business or factory or utility that is on the down grade. I get some return from my real estate. I may get nothing from my stock. I may even lose the principal.

If my factory or business is prospering and I want more room I had better build now while business is good so that I can use the building for increasing my business.

I am told that by building now I increase my overhead expense by the additional interest resulting from the higher cost. If I am not to build now what am I to do with my surplus in the meanwhile? If I invest it in securities to hold until the cost of building declines I will have to sell the securities on the declining market at correspondingly lower prices. It were better to invest it in buildings now, profit by the increased output I would get while business is good and, by adding to and readjusting my plant, so equip it that I may reduce the cost of production and be in a better position to compete with others when the inevitable decline comes.

## How the Ancients Built Walls

The statement is frequently made, comments *Buildings and Building Management*, that the ancient Romans used concrete freely, and that their work has lasted perfectly down to the present day. The impression that is sought to be conveyed by all such statements is that the concrete was precisely similar to that we are using now, and consequently is an argument for the durability of some of our cheap construction. Every one who has looked into the subject with any thoroughness knows, of course, that the Romans faced their walls with stone, and merely used a core, or filling, of cement and spalls, says *Stone*. This is far different from our concrete poured into removable forms. C. R. Peers, chief inspector of ancient monuments and historic buildings in Great Britain, delivered an interesting address on "The Care of Ancient Monuments" recently. Among other things, Mr. Peers said:

"We are accustomed to hear comparisons drawn between the work of former ages and our own, not to our own advantage. This is by no means always fair. There has been good and bad building in all ages, and in the course of nature more of the bad buildings have perished than of the good, and in consequence the achievement of any period which has left an appreciable number of works is liable to be judged on too favorable a ground. Even in such Roman buildings as are left there is no uniform standard of merit.

"The Roman tradition of building with two faces and a core was continued in the Middle Ages, but often with none of the care and thoroughness which was necessary for its success. In the eleventh century, at any rate, the core in many instances was little more than earth and building rubbish packed in between wrought stone faces, these latter in small stones with shallow beds. Such walls would stand no great weight and were also particularly sensitive to any foundation movement or lateral stress, having no natural strength.

"In a small building, where stresses are neither great nor complex, a weatherproof wall face protecting a weak core will often serve well enough for the time, but the ruin or reconstruction of many of our mediæval buildings has followed the adoption of such a principle. Walls were pointed in tolerable lime mortar, but built in nothing but clay, and as long as the pointing was able to keep the weather out, they were able to do the work for which they had been designed. But if, through any settlement or stress, a fracture developed, the masonry had no power of resistance, but fell away and became fit for nothing but pulling down, for lack of sound walling to which to bond a repair. It will easily be seen that it is almost impossible to strengthen such a wall so as to prolong its existence appreciably without destroying its character, considering that its character is the very source of its weakness."

## What an Architect's Military Experience Taught Him

What one necessary attribute were we taught in the army, more vital and beyond any other single item of experience? asks Charles E. White, architect, in an article in *The National Builder*. What peculiar quality of the new soldier finally came to the front and demonstrated his fitness to function in that army—what property did he possess after a few weeks of military training during which his mind and muscles were ever directed toward an ideal that was to make him eventually a winner?

Efficiency—that's the ideal sought for in military organization, and we can now pause and take our war-lessons to heart and apply them to civil life. What was good for the military is good for the business man who after all was the first one to demonstrate the power of systematic efficiency.

Efficiency is one of the greatest of words in a world where work is to be done. When applied to any sort of career efficiency is bound to spell the difference between success and failure. To be efficient is to be set, ready, alert, with all faculties aroused and all energies fixed on the goal. To be efficient is to have that complex machine, the human body, and that marvelous controlling element, the human mind, so thoroughly yoked that thought is but an instant ahead of action, and both thought and action are directed expertly, unmis-

takably, with precision toward a result that is almost as assured as the movement of tides and the sequence of seasons.

Much had been heard of efficiency before the war and much had been learned of the power of organization when directed along efficacious lines, but the world's allied military establishment adopted efficiency as its key note and blew upon this note so constantly that its message beat down the careless, happy-go-lucky, drifting tendency of men and built of them a machine intricate of parts but so perfectly geared and with such effectual precision that the war was won.

This efficiency of individuals will live. Old-fashioned wasteful methods of doing business are gone forever, and it behooves every business man to note the tendency of the times and get into the band wagon if he wants to keep his place in the sun. Nowhere will efficiency be so potent and inefficiency so impotent as in the field of building. This applies to every operation of every worker, in every department; to the banker who loans the money, to the architect who draws the plans; to the owner for whom the building is built; to mechanics who labor, drivers who haul, dealers who sell, contractors who build, and every manjack who in any way has anything to do with the planning, building, occupying, or operating of any building, large or small, for no matter what purpose erected.

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## Good Architecture as a Profitable Investment for the Owner

Discussing good architecture as a commercial asset, a contributor to *The Improvement Bulletin* states:

There still remain in this world persons who believe that architecture is a purely ornamental profession—that the man who retains the service of an architect to plan and superintend the construction of a building does so because he wants a few additional artistic effects, for which he is able and willing to pay.

The increased cost of building materials has been a pronounced factor in educating the public regarding the true field of usefulness which the architect occupies. A score of years ago a few thousand dollars sufficed to build a large box-like structure, with a great deal of room, but with no architectural merit. Architecture played very little part in the vast majority of buildings built a score of years ago. But when costs multiplied, owners naturally devoted more thought to the underlying requirements of good building construction. The architect is on a very much higher plane than he was a score of years ago, and the public is beginning to have a growing conception of the important role the architect should play in the development of the country.

It does not require any considerable knowledge of architecture to appreciate the superior appearance presented by any community in which the services of an architect are utilized in the construction of new buildings.

There are still a good many small communities in the country in which the carpenter and the mason are consulted rather than the architect when a new building is to be constructed. The layman does not stop to consider when he encounters such a community whether the business and public buildings and the residences were planned by a competent architect. He merely knows whether the town is pleasing to the eye—whether it bears the mark of distinction that the prevalence of good architecture imparts to any community. The first impression that he gathers from his initial visit to a town is generally the lasting impression, and more than nine times out of ten it is correct.

For it is usually true (probably invariably true would be a safe statement) that a town in which the representative citizens appreciate good architecture is a better town in which to live than a community in which scant heed is paid to the call of art. The citizens of the town in which the architect is called in to design business buildings and residences—even though the buildings be of small dimensions—have, as a rule, a wider intellectual horizon than men who believe that architecture is merely useless ornamentation, and that the carpenter and bricklayer can create a building of harmonious and attractive design.

Then again, it is true that the citizen who wants an architect to design his building is generally a shrewd and long-headed individual as compared with the man who believes in paring down expenses by eliminating the architect's fee. The architect who is master of his profession must not only plan a building of harmonious design, and attractive appearance, but he must keep constantly in mind the matter of practical every-day utility. There must be no waste corners in the completed building, the interior must meet modern requirements of light and ventilation, the heating plant must be adequate, and yet there must be no waste of material used either in construction or fuel. The building must be planned with close attention to the purpose for which it is intended, in order that the interior arrangement may be completed to the end that the owner, instead of finding after the lapse of a few months or a few years that there are

many features of the building with which he is not satisfied, will have an increasing satisfaction in the ownership of the building.

Good architecture increases the value of a building. That is a point that the astute owner always keeps in mind. Five thousand dollars or ten thousand dollars will buy just about so much material in any market. But five thousand dollars' worth of material built into a finished structure of architectural excellence has a higher market value than an equal or greater amount of material used in the construction of a building that is not pleasing to the discriminating eye, and is not arranged with a view to practical requirements.

## The English Post Office as Art Censor

Very properly Major Hayward asked the Postmaster-General, in the House of Commons, what he had to say about the destruction of a packet of etchings by Felicien Rops. It seems that Section 6 of the Foreign and Colonial Post Warrant, 1907, and Clause 63 of the Post Office Act, 1908, confer upon the Post Office officials the power to destroy any document or picture (if they consider it to be obscene) entrusted to them to deliver. It is nothing short of a grave scandal that apparently this power is exercised quite arbitrarily—possibly by officials who know nothing whatever about art, and whose ideas of obscenity may be those of Mrs. Grundy in her most prudish mood. Notoriously, the standard of judgment in such matters fluctuates with period, person, temperament, mood, climate. For Post Office officials to pass judgment on a work of art is utterly absurd, and for these unaccredited censors to order such a work to be destroyed is absolutely immoral. What is equally annoying is that such foolish presumption emphasizes our insularity, excites the scornful laughter of our Continental and American Allies, who may well think us a nation of purblind hypocrites, continually straining at gnats and swallowing camels. These etchings by an eminent Dutch artist were consigned to a London picture dealer. It was the plain duty of the Post Office to deliver them, not to read indecency into them and thereupon to destroy them. Such tyranny is morally indefensible, and the act that legalizes it should be promptly amended. In the meantime, it cannot be made known too widely that any work of art sent through the Post Office may meet with willful destruction at the hands of some meddlesome and presumptuous official. Censorship of this kind and quality would deprive our museums and art galleries of their most cherished treasures.—*From The Architects and Builders' Journal (London).*

## British Reconstruction Plans Aid Agriculture

Reconstruction plans of the British Government are being based on an estimate that the United Kingdom, if its soil were properly cultivated, could produce enough food for about 30,000,000 people, according to Sir Auckland Geddes, Minister of Reconstruction.

Great Britain, however, said the Minister, must not be purely an agricultural nor purely an industrial nation, but a blend of both. Some manufacturers must go out of business, he contended, but enough will remain to employ those persons not engaged in agriculture and to maintain an export trade that will supply the United Kingdom with the remaining foodstuffs needed.

The policy of the Government, the Minister declared, is to stimulate agriculture to the utmost, while at the same time maintaining the nation's industrial importance.

# THE AMERICAN ARCHITECT

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## Wasted Opportunities

*The Editors,* THE AMERICAN ARCHITECT:

When this country declared war, I was one of the first to volunteer for service, and perhaps among the first fifty men who had practiced architecture, to go to France. The statement of qualifications as made by me to the recruiting officer at the time of my enlistment apparently was ignored in the matter of my assignment, as I was placed in an infantry regiment (I had hoped for an assignment to the Engineers) and in due course was sent to France.

I am now back after some fourteen months of service on the front line, having reached the rank of sergeant. I am in hopes of taking up my practice where I laid it down.

What advantage, professionally, has this experience given me? I believe I can truthfully answer, none at all. I never had an opportunity to visit any of the localities where by actual observation I might have been able to acquire a large experience of the highest educational value. I have tried, but without success, to get leave of absence, stating in my request just why this leave was asked for. I never secured a moment's respite from the monotonous round of my military duties, and the result of more than a year's service has been, as far as my training as an architect is concerned, of little value.

I am wondering if my experience has not been similar to that of many another of my professional brethren.

AN ARCHITECT DOUGHBOY.

THE foregoing communication is from a subscriber recently returned from more than a year's service in France. His experience is one that will greatly interest every man in the profession irrespective of military service, as it discloses a condition that should promptly receive the attention of the authorities in Washington.

Reference has been made in these columns to the failure of the Government to avail in a logical way of the services of men trained in technical pursuits. At the time of actual hostilities it was a delicate matter to advance the contention that architects should be detailed to assignments where their abilities could be of the greatest value, as it was open to the criticism that it was desired to shield them from the dangers of the battle-front.

At this time, however, it may be permissible to direct attention in a more forcible way to a condition such as is described by this correspondent, and inquire if it would not be wise to give the architects and engineers who may seek the privilege, sufficient leave to travel in such localities as will permit them the fullest opportunities for observation and study.

If something of this kind is not done, we shall have to depend for our architectural history of the war on the observation and deductions of that large class of newspaper correspondents, who, while cleverly trained for their work, yet lack the highly developed powers of observation of the man educated in architecture.

There is yet time to remedy this matter, as among the men comprising our Army of Occupation in France and Germany are many architects and engineers who would regard it as an unusual opportunity if they could be assigned to a service of observation for which they are so eminently qualified.

It would seem that this is a matter that might enlist the prompt action of the Institute, and that it could by well directed effort make it possible that a certain number of men could be detached from their present purely military duties, and given a special assignment in architectural observation.

## Post-War Committee Report
### Relationship of Architect to Public

ARCHITECTS who fail to respond to the invitation of the Post-War Committee to communicate their suggestions as to the matters outlined in its program, will have only themselves to blame if the work of the committee fails through lack of proper encouragement. There is none too much time between now and the convention to be held during the last days of April for consideration of these matters, so it is earnestly urged that the committee should be assured of widespread co-operation.

In Section 1 of the program, treating generally of the relationship of the architect to the public, and with particular reference to the extension of the

service that the architect may render, it is pointed out that one of the most important of the problems under consideration is to discover where lies the responsibility for carrying forward a large majority of building operations without the services of a competent architect. The question is asked, if it is not possible that architects have not in the past placed too much stress on the æsthetic and too little on the business value of their functions. They undoubtedly have and the fault for such an attitude may, we believe, be located more in faulty educational methods than in any other direction.

This statement does not necessarily refer solely to the architect's college days, a period only preparatory to the more strenuous one of architectural practice. A part of every man's education, and perhaps the most important part, will be found in his efforts to keep abreast with the times. It means the keeping in touch with every important new development. This development will not be confined to the æsthetic aspect of his work, in fact that phase will be largely submerged by those vastly more important industrial advancements which are constantly occurring and never with greater rapidity than during the past three years. A man can only successfully extend his field of service in directions to which he has by education become fitted. So then, if architects either as individuals or as an organized body, are to keep abreast with the times, it becomes necessary to continue a process of self-education, to cultivate well trained powers of analysis. It would be regrettable if architects failed to appreciate the value of education for themselves when by their work they are constantly educating others.

Let us regard one field of architectural educational effort alone—the development of domestic architecture. Is it not a fact in the development of our houses, the refinement of domestic surroundings, that architects have largely contributed to the uplift of all the people from the lowest type of occupant, the industrial worker, to the owner of the most expensive type now being so numerously built by our wealthy citizens?

Again we feel justified in advancing the contention that each of the many questions that is put forward in the Post-War Committee's program has for its very foundation the subject of architectural education. And, whether it refers to that period at college or university, or the larger and more thoughtful one when men have gone into practice, there is not a minute when the subject of education ceases to be the most important of all.

## Planning a Department of Public Works

THE chairman of the National Service Committee of the Engineering Council, M. O. Leighton, McLachen Building, Washington, D. C., has called a conference of engineering societies, under the auspices of the Engineering Council, to formulate plans for the establishment of a Department of Public Works. This department is intended to control all of the construction activities of the national Government. There are now twenty bureaus of the national Government, controlled by six cabinet officials, which have to do with engineering and architectural construction work. The conference will be held at Chicago, April 23, 24, 25, 1919.

As a large proportion of public work consists of building construction, and its design and supervision are functions of architectural practice, THE AMERICAN ARCHITECT sent the following telegram to Mr. Leighton:

> "Are national, state and local architects' organizations invited to send delegates to Chicago Convention April 23? Large proportion of public work is building construction, the design and supervision of which is the architects' function. If you have not invited them will you do so?"

Mr. Leighton telegraphed a reply as follows:

> "Have invited American Institute of Architects and local club in Louisville and Los Angeles. Was unable to secure addresses of other state and local associations. Will be glad to invite other organizations if you will furnish me with names and addresses of officers."

THE AMERICAN ARCHITECT has furnished the data, as requested, and urges all architectural organizations at once to begin preparations for participation in this conference. In no other way can the interests of the architectural profession be conserved.

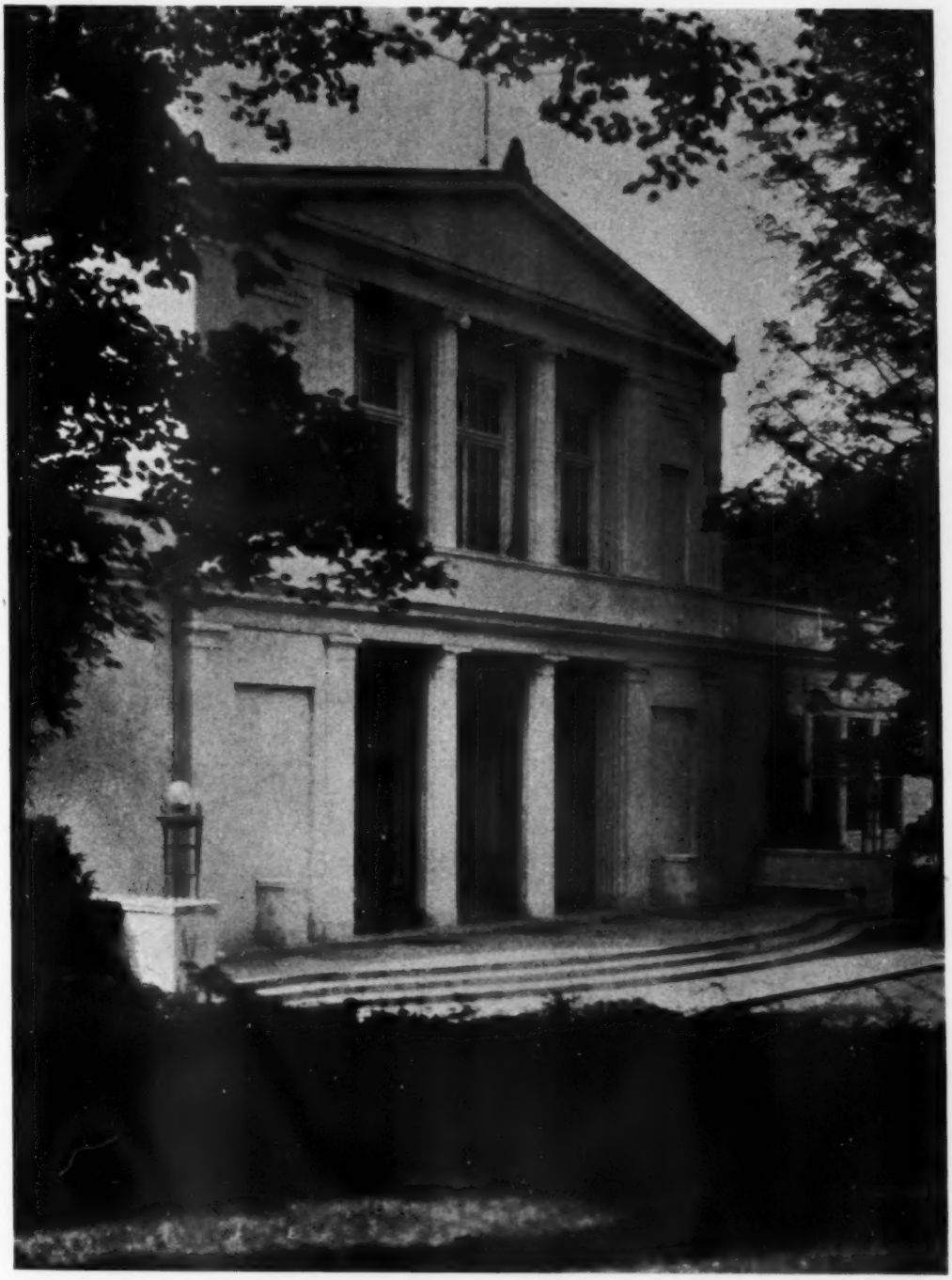

PLATE 104 MAIN ENTRANCE

SCHOOL ON ESTATE OF FRANK A. VANDERLIP,
SCARBORO-ON-HUDSON, N. Y.

WELLES BOSWORTH, *ARCHITECT*

PLATE 105 NORTH END OF SCHOOL BUILDING, SHOWING ENTRANCE TO GYMNASIUM

## SCHOOL ON ESTATE OF FRANK A. VANDERLIP, SCARBORO-ON-HUDSON, N. Y.

WELLES BOSWORTH, *ARCHITECT*, PLANTING BY OLMSTEAD BROS.

VOL. CXV, NO. 2258 APRIL 2, 1919

PLATE 106 REAR WALL OF THEATER

## SCHOOL ON ESTATE OF FRANK A. VANDERLIP, SCARBORO-ON-HUDSON, N. Y.

WELLES BOSWORTH, *ARCHITECT*

PLATE 107
THEATER WALL, SHOWING DRESSING ROOM WINDOWS AND FIRE EXITS FROM AUDITORIUM

## SCHOOL ON ESTATE OF FRANK A. VANDERLIP, SCARBORO-ON-HUDSON, N. Y.

WELLES BOSWORTH, *ARCHITECT*

PLATE 108 RUSTIC BRIDGE OVER RAVINE

## SCHOOL ON ESTATE OF FRANK A. VANDERLIP, SCARBORO-ON-HUDSON, N. Y.

WELLES BOSWORTH, *ARCHITECT*

VOL. CXV, NO. 2258 APRIL 2, 1919

PLATE 109 GATEWAY

## SCHOOL ON ESTATE OF FRANK A. VANDERLIP, SCARBORO-ON-HUDSON, N. Y.

WELLES BOSWORTH, *ARCHITECT*

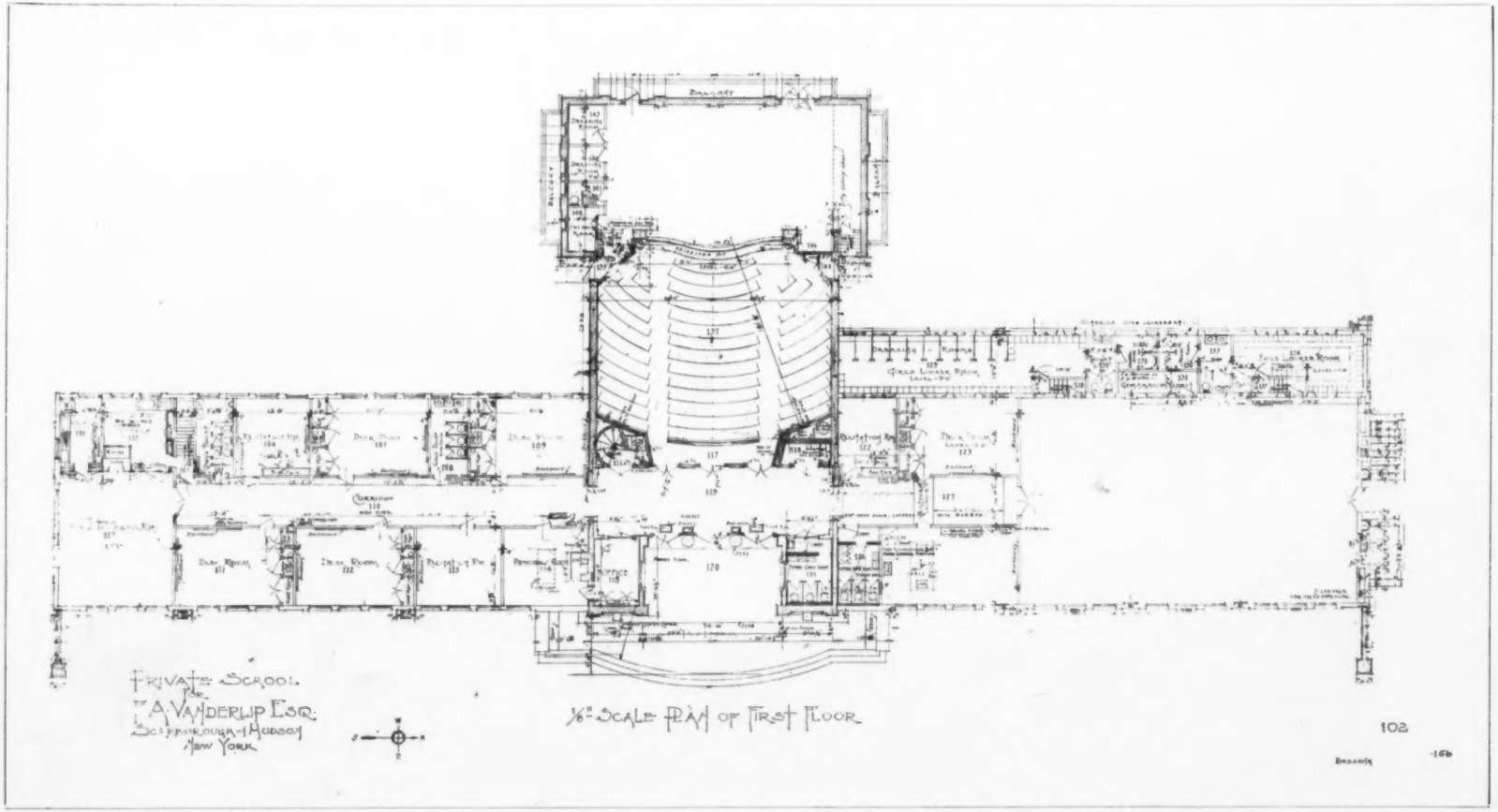


PLATE 110 MAIN FLOOR PLAN, THEATER REAR, GYMNASIUM ON THE RIGHT, CLASS ROOMS ON THE LEFT

## SCHOOL ON ESTATE OF FRANK A. VANDERLIP, SCARBORO-ON-HUDSON, N. Y.

WELLES BOSWORTH, *ARCHITECT*

PLATE 111

FIREPLACE AND MANTEL, WITH AN ORIGINAL PAINTING BY VAN DYCK

IN LIBRARY OF FRANK A. VANDERLIP,
SCARBORO-ON-HUDSON, N. Y.

WELLES BOSWORTH, *ARCHITECT*

PLATE 112

SWIMMING POOL ON ESTATE OF FRANK A. VANDERLIP, SCARBORO-ON-HUDSON, N. Y.

WELLES BOSWORTH, *ARCHITECT*

# Criticism and Comment

*The Editors,* THE AMERICAN ARCHITECT:

Replying to Mr. Francis W. Grant's letter in the March 5th issue of your magazine:

The advocates of the quantity system do not claim that it will eliminate every element of risk for contractors. In discussing estimating, I have often called attention to its factors, which are quantities, labor cost, material cost, overhead and profit. Quantities are determinable and can be fixed; the other factors are variable. In speaking of taking the gamble out of contracting, I have in mind eliminating speculation as to how much and what kind of work will be required. How the work will be done, what it will cost in labor and material offers full scope for a contractor's skill and judgment which, if you wish so to term it, may be called a gamble.

One of the weak points in customary practice is that the proper interpretation of the drawings and specifications for too many items is left for determination during construction. Contractors cannot afford to take the time, and architects would not be generally inclined to give time to all the numerous bidders to explain all matters that seemed erroneous or ambiguous or discrepant. Contractor's quantities contain many items that are simply liberal allowances to cover almost any reasonable demand the architect may make. No one but the architect can completely interpret the plans, and only when a conscientious and capable organization of quantity surveyors prepare quantities under his direction for the bidders can we be sure that the true requirements of a job will become the basis of estimates.

The quality of work required is controlled by the descriptive titles of the quantities edited by the architect. Quality in execution of the work can only be controlled by proper choice of contractor and supervision of work.

Yours truly,

New York. WM. GRAVES SMITH.

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*The Editors,* THE AMERICAN ARCHITECT:

The article appearing in your issue of Jan. 22, in which the waste due to building codes was discussed is interesting, and it appears to me that there is an opportunity for a great deal of action along the lines suggested. Overcoming some of the inertia, however, may be difficult. It seems that some recent tendencies have been in the other direction, toward more conservative regulations.

I hope the article will produce results and believe it should, if followed by others of a similar nature in a vigorous campaign.

Philadelphia. PIERCE P. FURBER.

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# Financial and Commercial Digest

## As Affecting the Practice of Architecture

### Campaign for Mortgage Amortization

A national campaign for the purpose of urging the principle of amortization of mortgage loans has just been started by the Savings Bank section of the American Bankers' Association, through its committee on amortization of mortgage loans. The organization of the movement was brought about by the appointment of a committee of six in each state of the Union which will study the situation in its district. The results of the committee's endeavors will be announced semi-monthly.

The Committee on Amortization of Mortgage Loans is constituted as follows: John J. Pulleyn, Chairman, New York; M. W. Harrison, Secretary, New York; Peter J. Slach, Cleveland; B. F. Saul, Washington; H. P. Beckwith, Fargo, N. D., and William A. Nelson, Ansonia, Conn.

In commenting on the work of the committee Mr. Pulleyn said recently:

"The total amount of real estate mortgage loans in the United States in life insurance companies, trust companies and savings banks is over $6,000,000,000. The greater portion of this is comprised of loans made for a period of years without any stipulation for gradual reduction or for amortization. There will be urgent need for funds within the next few years in order adequately to supply the demands of resumed building operations.

"The League of Building and Loan Associations, through its President, E. L. Keesler, has presented to an appropriate department of the Federal Government a request for legislation which would enable an increase of mortgage credit, that the treasuries of building and loan associations, depleted by patriotic response to the calls of war, may be replenished to meet the demands of peace readjustment. It may be a question whether such legislation is desirable.

"Nevertheless, the demands for mortgage loan money, other than for the building of homes in urban and rural districts, are insistent and increasing. The way in which adequate provision will be made to meet these demands is by the universal response on the part of lenders on mortgage security to some plan of amortization of mortgage loans."

## H. I. Cobb Outlines Building Situation

Henry Ives Cobb, architect, after an exhaustive investigation of building conditions in New York city and vicinity, has submitted a report to the Department of Labor, in which he declares the "cost-plus" method of making contracts is contrary to sound business principles.

Mr. Cobb feels that the uncertainty that has existed in certain quarters over the immediate future of the building industry was but the natural result of wondering as to what the Government would do. In his report he urges prompt and positive action by the Government, which, he says, is the first step toward a prosperity that awaits this country if not killed by neglect.

Speaking of the "cost-plus" system Mr. Cobb stated:

"For a number of years there has been much clever propaganda advocating the different methods of what used to be called 'day-work' under the new name 'cost-plus.' All such methods have but one object in view—the shifting of all financial risk on to the owner. It may be hidden in the most ingenious manner under promised benefits, but always fixes all costs on the owner whatever happens. Many of the good results promised might be realized if the human element could be eliminated, but unfortunately the results show poor work and excessive cost.

"A workman is human and irresistibly works differently if he knows the more his work costs the more his boss gets and runs no risk of loss if the work is badly done than he does if stimulated by the necessity of prompt, correct workmanship or his employer will lose money and reputation and he will lose his job.

"In order to produce quick results, the Government adopted very extensively a system of 'cost-plus' for war construction and the preparation of materials for the same. The extensive use of 'cost-plus' methods by the Government has produced a condition of complete demoralization in construction, labor, and materials which is constantly getting worse and will continue to do so until the Government takes definite action and fixes the method under which Government construction is to be handled.

"If the Government will come out clearly and positively that all departments are to return at once to pre-war methods, and all construction, including the completion of work under way, involving more than $1,000 shall be executed under contract for a fixed price and time, let in competition, the first and most important step will be accomplished toward a normal and healthy condition.

"If the Government will come out in equally positive terms that all Government construction will be produced by any one of the numerous 'cost-plus' methods, then as well an important step will be taken toward clearing up the situation, as it will result in forcing all important construction on the Government.

"No private purse is long enough to compete with the United States Treasury. Private funds are not interested in construction unless it can be produced under legitimate business methods for a fixed sum, in a given time, at a cost that will yield fair returns on the investment.

"During the stress of war construction another situation was created that is causing some serious uneasiness in the minds of many, but which will be cured by return to normal conditions and methods. Many operations were controlled by men unskilled in the handling of large rapid construction and endeavored to produce speed by numbers of men regardless of cost, and made the common blunder of thinking a mob of incompetents could replace organization and skill.

"As a result, many of the labor unions have quite a membership of men lacking the proper skill in the trade they were allowed to join. There are no workers more intelligent and careful about membership in their unions than the building trades and more particular in the selection of able leaders. A large part of the credit for all the benefits to human workers that has been brought about by labor unions is due to the skilled, educated mechanics of construction, and they can be depended upon to solve this problem in a satisfactory manner.

"Mechanics, labor unions, material men, sub-contractors, contractors, loan agents and capitalists all know that 'cost-plus' methods are contrary to sound business principles. The few investors who are indifferent to workmanship, time and cost who may employ such methods are of little consequence, but to have the Government adopt any but clean-cut, sound, practical methods is answered by the present conditions.

"The existing stagnation in construction is not due to high wages, but is the natural result of a feeling of uncertainty about what the Government is going to do. I cannot urge upon you too strongly the advisability of prompt and positive action by the Government, which is the first step toward a prosperity that awaits this country if not killed by neglect."

## Builders Ask for Boom Campaign

A project has been inaugurated in Pittsburgh which promises to result in a general resumption of home building in that section of Pennsylvania. A delegation, headed by S. P. Trimble, president of the Builders' Exchange, last week called on Mayor Babcock to get his immediate assistance in the project. They requested the mayor to appoint a joint committee of citizens whose duties would be to fix the prices of wages, materials, etc., so that building contractors and those contemplating the erection of buildings may be rid of the uncertainty that now exists in building circles.

## To Pay the War Debt

According to estimates of United States Treasury officials it will cost the American people about $1,200,000,000 a year for the next twenty-five years to pay off the war debt. This calculation is made on the assumption that the net war debt, with deductions for loans to the Allies, will be in the neighborhood of $18,000,000,000.

Interest on this amount, at the rate of 4¼ per cent, would be $765,000,000 a year, to be raised by taxes, and then repaid to bond holders. In addition, about $417,000,000 would have to be provided every year as a sinking fund to redeem all bonds in twenty-five years.

This would require a cumulative sinking fund provision of 2.32 per cent. Congress has not as yet authorized establishment of a sinking fund as recommended by Secretary Carter Glass.

# Current News

## Chicago Architectural Exhibition

The thirty-second annual Chicago Architectural Exhibition given jointly by the Chicago Architectural Club, the Illinois Society of Architects and the Illinois Chapter of the American Institute of Architects, with the co-operation of the Art Institute of Chicago, will be held in the galleries of the Art Institute of Chicago April 15 to May 8.

The Gold Medal of Honor established by the Illinois Chapter of the Institute will be awarded during the exhibition.

Entry blanks and full information may be obtained by addressing Frank A. Childs, chairman, 64 East Van Buren Street, Chicago.

## Buy Birthplace of Col. Roosevelt

The Women's Roosevelt Memorial Committee has purchased the house at 28 East Twentieth Street, New York City, where Theodore Roosevelt was born, and it will be remodeled and restored as it existed when he spent his early life there. In restoring the house, the descriptions to be furnished by members of the family will be followed closely, as well as the description written by Col. Roosevelt in his autobiography.

Before the house was sold several years ago for commercial uses it was a four-story brown stone, but alterations to make it useful for a restaurant and shops reduced it to only two stories, so that the interior will have to be restored entirely. When the Roosevelts occupied the house before the Civil War and for many years afterwards, the main entrance was slightly lower than the present street level and there were three floors above this main floor.

## Favors Reconstruction of Detroit's Blocks

Speaking of the housing problem in Detroit, Mich., F. Gordon Pickell, architect, states that 25,000 or more houses or apartments, which would cost at least $50,000,000, are needed in that city. "Reconstruction of wasteful areas," he said, "can only be done by developing each block as a whole. The new zoning plan will be a great help to this, but its measures are only restrictive and our greatest need in this matter is something constructive.

"We need the reconstruction of our ideas, so that we will consider it useful and beneficial to take whole blocks, where the buildings are a detriment to the land they occupy, and rebuild them so that they will provide the maximum facilities for comfortable housing that they are capable of supplying, or their position will warrant."

## Jobs for New York's 77th

When the men of the 77th, New York's National Army division, come home in April they will find that most thorough preparations have been made for their re-entrance into the business world. While "New York's own" division is awaiting sailing orders in France, Major S. Fullerton Weaver has been sent to New York by Major General Alexander, commanding the 77th, to arrange for jobs for men of the division, and for a National Army Club house.

Major Weaver has opened a bureau in co-operation with the United States Employment Service. He has written a circular letter to 5000 business men, under whom the 77th division men worked when they entered the National Army, and who, the soldiers believed, might hire them when they returned from France. Major Weaver brought with him from France a card index system showing that 21,400 of the 27,000 men in the division are sure of jobs when they return. That left 5600 to be placed. This number has since been cut down to 5459, because 141 employers have sent word to the 77th Division employment bureau that each will take care of one soldier.

Outlining the labor situation in so far as discharged soldiers from other cities who are seeking employment in New York are concerned, Major Weaver asks that the slogan, "New York jobs for New York soldiers," be adopted by New York business men. He states:

"It is an unfortunate fact that many soldiers from various localities who, on being mustered out of service in the vicinity of New York, have preferred to remain in Greater New York, rather than return to their own homes, and in securing employment here have pre-empted positions which would have been available to New York soldiers returning home at a later date, while the jobs waiting in communities of these out-of-town soldiers are not available to the returning soldiers resident of Greater New York."

## Urges Builders to Watch Opportunities

"There is a real demand to-day for housing all over the country," said Hon. William M. Calder, United States Senator from New York, in addressing members of the Builders' Exchange at Baltimore, Md., recently. "And," he continued, "if I were to offer advice it would be to urge builders to watch their opportunities and be prepared to take advantage of them when they are presented.

"It is estimated that the financial resources of our insurance companies, savings banks and other institutions have accumulated during the last four years to the extent of $4,500,000,000. It is also estimated that the plans of the country required this amount to put it in efficient working condition and to rearrange it for efficient peace production.

"The nation should immediately interest itself in the investment of its labor and surplus capital in the basic industry of construction, because every dollar and every hour of labor thus invested has earning power and will ultimately cheapen the cost of production of commodities.

"This problem will be met if public interest is centered upon it—if the people can settle it.

"The traditional American attitude toward industrial problems is one of optimism. It is justified by the natural resources of the country and by the character of the population, molded by the public school, educated and self-reliant. The transition period from a war to a peace basis is no doubt a different one, but we know it to be temporary and we believe that it will be followed by a period of exceptional prosperity.

"The one thing that troubles us most today is high prices. If it were not for the high prices there would be no serious transition problem."

## Cut Made in Employment Service

Owing to the failure of passage of the Urgent Deficiency Bill and the unavailability of funds from other sources, the United States Employment Service, the national machinery for placing soldiers, sailors and war workers in suitable employment, was reduced to 20 per cent of its present size on March 22.

The cut was made so as to preserve a skeleton organization that will enable the U. S. Employment Service to continue its efforts to place soldiers in employment and to centralize the activities of other Government agencies, welfare organizations and other bodies interested in employment.

While the regular branch offices of the U. S. Employment Service formerly numbered 750, they have been reduced to 56, the 2000 emergency bureaus for returning soldiers and sailors and the representatives of the U. S. Employment Service in the demobilization camps being continued. The 56 remaining employment offices are located in strategic industrial centers where the employment problem is most complicated, while the special soldiers' bureaus already for the most part are financed by local funds. It is anticipated that many of the 700 regular employment offices, which can no longer be financed by the Employment Service, will be continued by the communities in which they are located.

## New York Society of Architects

The regular monthly meeting of the New York Society of Architects was held March 18 at the Society's headquarters, United Engineering Societies Building, New York. There was a large attendance of members and an interesting program of proceedings.

A motion was adopted raising the initiation fee for membership to ten dollars.

It was brought to the attention of the meeting that many architects do not think it worth while to record their certificate of professional practice. A motion was thereupon passed that it is the sense of the Society that it is the duty of every architect, regardless of personal feeling and as a member of a body of professional men, to record his certificate and assume the title conferred thereby.

## Lumber Shortage in Italy

There has been a great shortage of lumber during the entire period of Italy's participation in the war, according to Consul General David F. Wilbur at Genoa. Switzerland has furnished about 75 per cent of the imports of rough-hewn lumber and about 80 per cent of the squared or lengthwise sawn. Arrivals of squared timber, which were in 1914 no less than 960,703 tons, diminished in 1915-17 to an average under 250,000 tons.

The scarcity and high price of fuel led to a serious cutting down of the olive trees, thereby injuring one of Italy's greatest export industries, that of olive oil, especially in Liguria. Though the cutting has now stopped, it is feared that the damage will not be easily repaired.

There should be pitch-pine lumber needed for construction purposes following the partial suspension of building operations, but at present new enterprise halts, owing to the unsettled conditions.

## Forest Laboratory Tests

Co-operative work between the Emergency Fleet Corporation and the Forest Products Laboratory of the Forest Service has resulted in the improvement of grading rules for ship timbers, the development of methods of wood preservation, and the discovery of new woods for use as treenails.

Specifications for ship timbers that would yield a satisfactory grade of material and at the same time allow quantity production were prepared with the aid of data obtained by the laboratory on the mechanical properties of various native woods. These specifications were adopted by the Fleet Corporation and the American Bureau of Shipping.

Creosote specifications and methods to follow in the application of wood preservatives to wooden ships were developed and adopted. A large saving was thereby effected through making the Fleet Corporation independent of numerous proprietary wood preservatives which at that time were being promoted with the greatest vigor.

Driving tests on various grades of standard locust treenails were conducted at shipyards, and specifications based on these tests prepared. The adoption of these specifications by the Emergency Fleet Corporation resulted in the elimination of defective material prior to shipment and insured the delivery at shipyards of good, serviceable treenail stock. They also made possible the establishment of a scale of prices.

The use of live oak and osage orange for treenails in addition to locust was recommended after a thorough investigation of the suitability of various species for this purpose. The inclusion of these two woods relieved the seriousness of the situation caused by the failing supply of locust.

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## Build Now!

"Despite the high prices of building materials, the unsettled labor market, the next Victory loan and other tendencies that make it look like there will be little building in the near future, there is an optimistic side as well as pessimistic viewpoint," writes F. C. Fowler of the New Jersey Materials Co.

"If the individual cannot afford to build some one must build for him, and that means a step near to quantity production. With the money market in its present condition the employers of labor should, from every angle of economics, protect their employees' interests by using their organization's financial strength to produce houses on a quantity basis that will give their workers the six thousand dollar house for four thousand or better.

"During the war the Housing Corporation instituted a movement of this kind under a stress that hampered them in getting the proper quantity production costs.

"The amount of the loan on each house in a project should be increased, as the loan value would not only be based on the real value of the dwellings, but would also be influenced by the rating of the sponsor. To a large degree the personal equation of the investor comes into the loaning of money; to such an extent as to limit the percentage of loan on the value of the house in accordance with the personal standing of the investor.

"There have been numerous ways offered to keep good times with us, including the usage of Liberty bonds as currency. There is enough currency now in circulation. All that is necessary is to speed up this circulation and business will take care of itself. With the industries starting a building boom, the individual will follow suit. If all industries would take a hand in the movement they would receive their money back through the regular channels of trade. Then labor will be better satisfied.

"To sum up it does not require a prescription to find out how to get money on mortgage during the period of transition between war and peace. It requires the business men to step out and make a building boom by building houses for their employees. If they do they will find that all the money that is required is there up to 100 per cent of the valuation of their project. In the meantime, the man who is living in one of their houses continuously over this period is helping the attainment of the perfect zero on labor turnover in the plant."

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## Personal

Keffer and Jones, architects, have moved their offices from 610 Youngerman Building to 201 Hubbell Building, Des Moines, Iowa.

Clement S. Kirby, architect, has moved his offices from 757 East Sixth Street, to 9 Baker Building, Erie, Penn.

Charles B. Young, having returned from service with the Government, has re-opened his office in the Strand Theater Building, Lexington, Kentucky, for the practice of architecture.

Offices for the practice of architecture have been opened by the new firm of Beshgetoorian and Cobelli at Bangor, Texas. Harry J. Beshgetoorian has practiced his profession both in New York City and Miami, Fla., while Edwin G. Cobelli is from Chicago. The new firm desires to receive manufacturers' samples and catalogs.

# Late News from Architectural Fields

*Special Correspondence to* THE AMERICAN ARCHITECT

## Stabilizing Market Prices

Washington, D. C., March 29.—During the past week the Capital has been the scene of much argument over the industrial prospects of the country. With the opening session of the conference of the steel and iron men with the industrial board of the Department of Commerce, new hopes have come into the minds of economists, architects and business men here that the inevitable era of building and business prosperity soon will be launched in full blast. Although the effect of a revision in prices may not be felt for some months, it is expected that the official announcement of the agreement of the representatives of the various building industries with the industrial board will result favorably very soon in stabilizing the market and stimulating construction work and building.

On the chief basic iron and steel products the reductions agreed upon with the representatives of those industries range from 10 to 14 per cent below current figures and from 13 to 22 per cent below the prices allowed by the war industries board during the war. Hope that the cost of steel products might be still further lowered by a reduction in transportation rates was dispelled by the announcement of Director General Hines that such would not be the case.

The industrial board in announcing the new schedule of prices made the following comment:

"In giving its approval of the schedule of prices for the principal articles of iron and steel, the industrial board of the Department of Commerce, carrying out the purpose for which it was created, believes that a level has been reached below which the public should not expect to buy during the current year. The purpose of the board is to bring about such a lower level of prices as will affect stability and stimulate trade to the end that business and industry can proceed and build up with confidence and provide maximum employment. In giving its approval to these prices and others which it will consider immediately it will endeavor to strike a balance which while calling sooner or later for some sacrifice or adjustments on the part of all, yet will not subject any of these interests to undue hardships.

"It is fully understood and expected that the present wage rates or agreements will not be interfered with, the approved prices having this in view. The reduction in the price lists may involve the necessity of some high-cost plants either shutting down temporarily or running at a loss for a period, but it is expected with an increased volume of business soon to be developed a reasonable return to the average and better than average producers will be afforded. In view of the higher costs developed throughout the world during the war, a return to anything like pre-war prices is regarded as out of the question. It is expected that other industries, as well as the consuming public and labor, will recognize their obligations to the country in the circumstances and co-operate in the same generous spirit as has the steel industry."

The problem of lumber was on a slightly different basis from that of steel. The advance in the prices of lumber during the war period did not keep pace with that of other commodities, and due to the shortage of labor, building restrictions, increased production costs and the relative small proportion of the production capacity called into operation by the war program, many lumber manufacturers throughout the country very seriously have felt the effect of restrictions and regulations. The prices that were fixed for few woods during the war were not at all productive of increased output by many mills, and it was only the most efficient and the largest mills that could operate under such circumstances at a reasonable margin of profit. Weather conditions and employment at the mills in the South during the last five months have permitted only about 50 per cent of normal production, and on the West coast, some woods have been manufactured at a sacrifice. Most hardwoods and certain of the less popular softwoods advanced very little during the period that other commodities and labor increased on a general average from 100 to 200 per cent.

The representatives of lumber manufacturers, entirely conversant with these facts, were very little inclined toward a reduction in lumber prices upon approaching the board yesterday. After six hours of discussion, during which time the members of the board were made to feel the justice of the contention of the lumbermen, it was suggested that a committee of representative lumbermen be detailed to provide accurate data to the board so that the question of price adjustment may be given more definite study next week. That committee will meet from time to time with the board next week during the conferences with the cement and brick men, and it is expected that an equitable agreement may be reached.

During the private conferences here among the lumbermen, there was little indication that they would favor any reduction in prices, although there was a definite willingness to contribute to the speedy resumption of building activity, even though it might entail a temporary loss to the lumber interests.

## Disposal of Surplus Hardwood Stock

Washington, D. C., March 29.—As a result of a conference held between representative members of the hardwood industry and representatives of the Office of Director of Sales in regard to the disposition of the surplus stocks of hardwood lumber in possession of the War Department, the hardwood industry chose a committee to act with the Government in this matter. The members of the committee are: C. A. Goodman, president of the National Hardwood Association; Horace F. Taylor and R. M. Carrier, and their function will be to act in an official capacity in disposing of surplus hardwood lumber owned by the War Department. It is the intention of the War Department to work in conjunction with this committee in offering its hardwood in such a way that the market for hardwood lumber will not be unduly disturbed.

## New Bill Aims for Cheaper Housing

Detroit, Mich., March 29.—The campaign for more houses and better housing facilities in this city has been given a big boost by the introduction of a bill by Representative Toepel, amending the State housing code. The new measure is the product of the deliberations of the Michigan Chapter of the American Institute of Architects, the Detroit Real Estate Board and is endorsed by the Board of Commerce and the new council.

The bill permits transforming a single dwelling into a two-family or multiple dwelling, provided the owner conforms with the spirit of the code. Many of Detroit's houses are built on one side of the lot within a foot of the lot line. In the two-mile circle are hundreds of such houses that would be doubles were it not for the fact that by alterations they cannot come under the code and then cannot proceed to remodel because the code calls for a three-foot space to the nearest lot line.

Restrictions of the present code are so severe that in Detroit, Lansing, Flint, Jackson, and other towns that have been growing rapidly owners of vacant property are averse to constructing houses, and inability to remodel houses without coming under the code has prevented many property owners, especially in the two-mile circle in Detroit, from transforming big houses into duplexes or other multiple dwellings. It is said by Detroiters that the severity of the code actually has a bearing on rentals in the metropolis because it discourages property owners.

Apartments may be contructed under the new bill to the rear alley line, provided a court is constructed so that the legal amount of light is obtainable. Alleys 20 feet or more in width count in the rear yard space, but as there are few alleys wider than 20 feet, little is gained by the property owner.

## Architects Urge Park System Aid

Providence, R. I., March 31.—At the monthly meeting and dinner of the Rhode Island Chapter of the American Institute of Architects held at the University Club last week, much enthusiasm was manifested on the subject of Metropolitan parks. A resolution requesting the general assembly to provide sufficient funds, both for the proper maintenance of the park system and for the restoration necessary on account of damage done through recent lack of appropriations was heartily endorsed and ordered communicated to the General Assembly.

Col. H. Anthony Dyer was the special guest of the evening. After the regular routine business had been disposed of and the support of the Chapter pledged to the park project, much of the evening was devoted to a discussion of the especial form of victory memorial that should be adopted by the State.

Col. Dyer, as a member of the special committee appointed to consider the establishment of a permanent State memorial, warmly advocated the proposition to build it on the State House grounds.

An informal but unanimous vote showed it to be the sense of the meeting that such a memorial, if placed in the vicinity of the State House, should be at the axis of the building, on Francis Street, in substantially the location suggested by Col. Dyer and in accordance with the larger plans hitherto presented by the City Plan Commission and the joint commission of the city and State for the development of the whole "Public Garden" between the Union Station and the Capitol.

Detail drawings of the latter plan were exhibited and it was explained that these had been prepared after consultation and with the carefully considered approval of the expert advisers of the City Plan Commission, Messrs. Arnold Brunner and Frederick Law Olmsted, as well as the State House architects, McKim, Mead & White. Col. Dyer believed that the State memorial would be in entire harmony and a logical part of the development of this larger plan if they should be carried out later, and it was the unanimous opinion of the Chapter members that this ought to be the case.

## Washington Architects Optimistic

Washington, D. C., March 29.—A spirit of genuine optimism has already begun to characterize the thought of architects here, after a long period of more or less forced complacency over the building future.

Appleton P. Clark, Jr., president of the Washington Chapter of the American Institute of Architects, commented very favorably on the recent announcement of the reduction in steel prices, to the effect that such would bring about a much needed stimulation of business activity, and once more "set the wheels of industry in motion."

In commenting on the present situation, B. Stanley Simmons, architect, said: "The present situation is partly attributable to the reluctance of trust companies and individuals who usually seek real estate as a basis of security for their funds to withhold same pending the next Victory Loan issue, under the impression they will be called upon to absorb a large proportion of the whole issue. Since practically 98 per cent of the people who build are borrowers, it should be readily apparent that it is this hesitancy on the part of money lenders that is doing more than anything else to retard building. There are many substantial business men who are both ready and willing to build but for the lack of adequate loans with which to do so,—yet, in spite of these conditions, I am very optimistic."

A concerted effort is being made on the part of architects, builders and investors to come to some agreement with labor organizations whereby a regulation scale of wages will be decided upon. Much building is needed here, and it is the belief of E. H. Mealy, secretary of the Builders and Manufacturers' Exchange, that unselfish teamwork between all involved will reduce the cost of construction to a point where the owner and investor will consider it profitable to build now.

## Chapter Discusses Building

Pittsburgh, Pa., March 31.—Matters of vital interest to building affairs of the country were discussed at a special meeting of the Pittsburgh Chapter of the American Institute of Architects in the Fort Pitt Hotel last week. The discussions related for the most part to the post-war activities of the profession.

F. A. Russell, the Pittsburgh Chapter member of the Post-War Committee of the American Institute of Architects, presided. Among the speakers were Dr. Charles W. J. Chubb of Ohio State University, representing the Columbus Chapter; Harry I. Schenck, representing the Dayton, Ohio, Chapter and the Ohio State Association, and Clifford C. Brown, also of the Dayton Chapter.

The discussion brought out that architects must adopt a system of guarantee of their work to owners, as the owners' active interest is in the actual construction of buildings, not in architects' drawings.

## Bill Plans for Dividing Cities

Harrisburg, Pa., March 31.—A bill permitting cities of the second class, Scranton and Pittsburgh, to regulate and limit the height and bulk of buildings and areas of yards, courts and open spaces and to regulate and restrict the location of trades and industries and permitting the city planning commission to divide the city into districts for this purpose has been introduced in the House by Representative Stadtlander of Pittsburgh.

In the Senate a bill was introduced appropriating $199,500 to the trustees of the State Hospital for the Criminal Insane, of which amount $100,000 would go toward the completion of a new ward and $4,500 to putting the finishing touches to the home being built for Dr. William M. Lynch, superintendent. The bill permits the trustees to use inmate labor in the construction work.

## Post-War Committee Activities

Washington, D. C., March 29.—A meeting of the executive section of the Post-War Committee in Chicago next week promises to further the plans already outlined in previous reports of this important committee's activities.

The local Chapter is preparing to send four delegates to the annual convention of the American Institute of Architects in April, and it is understood that the major part of the discussion will be confined to the program of the Post-War Committee.

# Department of Architectural Engineering

## The Standardization of Building Products

*By* ROBERT D. KOHN, *F. A. I. A.*

WHILE the President of the United States and the Peace Commission are busily engaged in trying to secure for the world the just rewards of victory in the war, it is necessary that those who were engaged during the war in minor activities connected with its prosecution should devote themselves to making permanent some of the worth-while results of the war-time effort. That there are many such worth-while lessons to be learned no one connected with war production can doubt. Every trade and profession will unquestionably be materially changed as a result of the war, either for better or worse, depending on whether or not the war-time experience is examined with a view to securing as a permanent benefit the modifications which are suggested by the war-time experience.

Not the least of these war-time efforts was the work done by the building industries of this country in connection with the war-time housing. It is too early to judge of the effect of the work of the shipyard housing division and the housing corporation charged with the problem of caring for the workers in the munition plants. It is not too early to begin to study the indirect effects of this work.

The necessity for speed of production in all of this housing work required simplifications in the processes of production and simplifications in the details. It was necessary to standardize certain things and it may be said now that such standardization was not harmful to the appearance of the buildings produced and certainly shortened the time of production. Had the war continued for another year, the results in this direction would have been much more evident. But even before the armistice was signed, certain things had been pretty well standardized, thus, for instance, a type kitchen had been worked out with a bathroom located immediately above it, in which the arrangement of fixtures in the kitchen and those in the bathroom had been so simplified that it was possible to determine immediately the number of fixtures and the quantity of piping of various kinds that would be required for any number of buildings. Doors and windows were used of certain stock patterns, and the design of cornices, interior trim, and other exterior details were frequently modified by the use of stock mouldings and parts without any apparently bad effect upon the appearance of the building.

Without going into the details of these items of standardization, the experience was such that we were justified in claiming that we could, with advantage to cost and to production, adopt similar methods in normal building practice. We find, for instance, that in current building work, almost every architect's office is in the habit of making full size details of window boxes with slight variations for every job. Why could not a standard window frame detail be determined for frame buildings, and one for brick buildings, a detail that would be worked out in agreement between a committee of architects and mill men? This could be so adjusted as to use the most convenient procurable size of materials, and there might even be a first grade and second grade of manufacture so that specifications would merely be drawn to the effect that window frames of a building would be of size as shown on plans and of standard detail, only the thickness of the sash varying with the size of the frame, for instance. Then, too, there is the matter of plumbing fixtures. Today we have several dozen manufacturers of plumbing fixtures and not only does every fixture vary from every other in its roughing measurements, but there is not even uniformity in any one kind of fixture produced by the same manufacturer. It would not seem difficult to secure uniform roughing measurements throughout the country for certain definite types of apparatus. Probably the same result could be attained with heating apparatus, radiators, registers, etc. There are innumerable kinds of building products to which this same principle might be applied. Today the variation between products lies not only in the size and method of construction, but in the quality of the products. If size and details of construction

were standardized, qualities alone would be the basis of judgment. It is a common statement in the building world that a plumbing specification which gives the option as between the products of two different manufacturers is really absurd because there is no comparison between such products.

In the list of subjects proposed for consideration of the building world by the new Post-War Committee of the American Institute of Architects, this question of standardization is not the least important. It is one the importance of which justifies the active co-operation of manufacturers, builders and architects throughout the country. It will undoubtedly require considerable earnest effort to accomplish results. Standards will necessarily vary in different parts of the country owing to the differences of available materials and variations in the requirements resultant on varying climatic conditions. Naturally the problem will have practically little interest for those who are mainly engaged in the production of buildings where the cost is not an element and where the æsthetic effect is the principal guiding consideration. In times like these, however, when building costs are high and the problems of construction more and more grave, standardization of products in common use will doubtless be exceedingly helpful in reducing costs and simplifying the processes of building.

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The foregoing article, in which Mr. Kohn so forcefully calls attention to an important war-time lesson, is well worth consideration and an earnest effort to bring about the suggested result. The recent experiences in house production to which he refers have taught the lesson that some things commonly thought to be essential are, in fact, non-essential to good design and construction. Intensive and speedy production necessitated the elimination of every factor that involved the expenditure of time—cost not being the controlling element. As stated, standard parts and fixtures were adopted and this method eliminated the dozen-and-one ways of accomplishing the same result in effect. The result satisfied the demands of the designer and of expeditious construction, that was the criterion.

Unfortunately many architects have a pronounced aversion to anything that is "standard" being incorporated in their design. This reluctance arises from a desire for the personal element in all parts of design, which is a laudable purpose in a certain measure. There are, however, very definite and reasonable limits to "originality." This limit should be determined by the relative importance to the whole effect of the appearance of the particular element under consideration, as balanced by the excess cost of a special design.

Mr. Kohn's idea of standard window frames and sash is perfectly tenable. They perform a certain function and a minor variation in detail has no effect on the appearance of the structure but it does have an influence on its cost, involving a waste with no adequate return whatever. To the most careful observer the construction of the window box is buried in the wall, the detail of the sill, head and staff bead has no marked influence on the observer as long as it apparently conforms to customary proportions.

An architrave, picture mould, chair rail or base board should have a size in proportion to the height and size of the room and its openings. The base board, being utilitarian, serves its purpose regardless of the detail of its moulded member and if its proportions are correct the result is satisfying. Who makes a close-in inspection of the profile of a base board moulding? But many architects vary these mouldings with each structure without any added advantage to the structure. A qualified contractor of interior finish once illustrated how the change of a moulding profile, not exceeding one-sixteenth of an inch, would save 30 per cent of the material required to manufacture the moulding. The detail was made without regard to the stock sizes of the material from which the moulding was to be manufactured and the architect evidently had no comprehension of the manner in which mouldings were produced. Carefully prepared data on a year's production showed that this manufacturer had to add 20 per cent to all estimated quantities of materials in order to cover the waste due to designs not conforming to stock sized rough material.

In a recent address before the Municipal Engineers of the City of New York, Mr. C. E. Dobbin, Deputy Superintendent of School Buildings, Bureau of Design, states that about 80 per cent of their specifications are standard and that the variations amount to about 20 per cent. Industrial architects and engineers find in their work that the same proportion holds good. Consequently, if in schools and industrial buildings so large a percentage can be made standard, is it not reasonable to suppose that in other types of buildings, a large, if not as large, percentage of standard details could not be used? Standardization of these common factors can be accomplished with a benefit to plan production and the fabrication of material.

This well illustrates the necessity for standardization as suggested by Mr. Kohn. A committee of architects acting in conjunction with manufacturers could develop standard details, that are good looking, that conform to manufacturing requirements

and thus effect savings in time and money without any sacrifice of an essential factor, either æsthetic or utilitarian. Architects should lend every assistance to the Post-War Committee of the American Institute of Architects in furthering this laudable purpose.—THE EDITORS.

## The Wisconsin Industrial Lighting Code

THE Industrial Lighting Code for factories, mills, offices and other work places, issued by the Industrial Commission of Wisconsin, has been received. This code was revised in 1918 and is the latest regulation of its kind.

The code consists of two parts. The introduction refers to the State laws requiring the Commission to fix standards for industrial lighting, and also describes the methods used in formulating them. The application of the rules and definitions of the terms employed and the rules themselves conclude the first part. The second part consists of explanations of the rules.

This publication is, in fact, a condensed and comprehensive manual on the subject. In advising the factory owner concerning compliance with the orders, it is assumed that he would not attempt to do this himself, but when he is contemplating the construction of a new building he is advised to call in an architect and instruct him to carry out the provisions of the code, with which the architect is supposed to be familiar. Provisions for natural lighting must be made when the building is planned —which is the architect's work. Artificial lighting should be provided for by a competent person, and the owner is advised, in case he leaves it to the architect, to assure himself that the architect employs a competent illuminating engineer or the owner employs an independent consulting engineer. A competent illuminating engineer will effect a saving in installation and maintenance. In any event compliance with the law is necessary.

The methods used for measuring the intensity of illumination and the apparatus made for this purpose are described. The means for providing natural illumination are described and are naturally a part of the building construction. The various types of artificial lighting units and the reflecting accessories are also described. A careful study of this code will enable Wisconsin architects to plan in conformity with the law, and this code is a guide to those architects who design in states where illumination is not regulated by law. Every architect, in order to properly serve his client, should be familiar with these standards. This code has the same merit that is possessed by the other codes of the Industrial Commission of Wisconsin in that it is brief and limited to the minimum requirements, their State Building Code being a notable example.

This code was prepared under the direction of John A. Hoeveler, electrical engineer for the Commission, and evidences a large measure of research and care in its preparation.

## Industrial Zoning[1]

By HERBERT S. SWAN

*Executive Secretary, Zoning Committee, New York*

THERE seems to be a more or less general impression that zoning, insofar as it affects business and industry, is negative—that it is merely a means of keeping business and industry out of residential sections. So pronounced is this view that the very word zoning has commonly come to mean "protection" for dwelling houses, and "restriction" for stores and factories. This situation is most unfortunate, for zoning, when rightly understood, can be made something as positive and helpful for business buildings as for non-business buildings.

### NEED FOR INDUSTRIAL ZONING

That the relative competitive strength of a city in the domestic and foreign markets of the world is frequently conditioned to quite as great an extent by the arrangements of the industries within the city as by the availability of raw materials and the proximity of a consuming public is just beginning to dawn upon us. Economical means of transferring and distributing freight within a city contribute proportionately no less to the development and expansion of its commercial and industrial hinterland than efficient outside connections by rail and water. Heavy terminal costs are as much a drag upon a city's prosperity as high freight charges. Every cent saved in needless trucking means just that much more money available for the extension of the city's commercial and industrial radius by rail or water.

When factories and warehouses are not located with reference to freight terminals, a situation frequently develops where the downtown streets are unnecessarily congested to the inconvenience and financial loss of the whole city. A similar condition results where mutually interdependent industries locate in widely separated parts of the city instead of near one another. It is maladjustments of this kind that zoning is designed to remedy.

If experts on transportation are correct in telling

[1]Paper read before the National Conference on City Planning held by the American City Planning Institute at St. Louis.

us that the movement of freight increases as the fourth power of the population, that the freight traffic doubles every time the population increases 20 per cent, then the street congestion experienced by our large cities of to-day is as nothing compared with what our larger cities of to-morrow will be obliged to endure. They will be compelled to adopt every possible means in order to keep traffic moving or choke under their own growth.

The purpose of this paper is, however, not to analyze the various evils from which our cities are suffering. That is the function of the economic and industrial survey. The object of this paper is rather to consider the detailed method of formulating the zoning ordinance and of laying out the several business and factory districts than to dwell upon the necessity for zoning.

### Simplicity of Classification

The simplicity or complexity of its classification will affect as no other factor the continued success of a plan, for after all zoning is almost entirely a matter of classification. If the classification is vague, ambiguous or needlessly involved, it is apt to prejudice the operation of the whole plan.

These facts do not seem to be generally appreciated. Some cities appear to think that the prime requisite in a good zoning scheme is elasticity. A certain amount of elasticity is, of course, wanted, but not at the expense of simplicity.[1] The Minneapolis and Berkeley ordinances are both illustrations of instances where extreme consideration has been paid to elasticity. The Minneapolis ordinance subdivides trades and industries into sixteen different classes; the Berkeley ordinance into twenty different classes. Taken in all their possible combinations, the building classes of the Minneapolis ordinance would permit 241 separate and distinct kinds of industrial use districts. The Berkeley ordinance would permit of 381 separate and distinct kinds of use districts. Such elasticity is bound to develop into a situation where ultimately each district will be just a little different from every other district with the consequence that nobody will know what is allowed or disallowed in any district.

It may be urged that it is very unlikely that all of these combinations will ever be taken advantage of. This may be true, but their very possibility will lead to the development of unnecessary complications.[2] That such minute refinements in the classification are bound to prove irksome, if not unworkable in practice, is evidenced by the fact that Berkeley after less than two years' experience under its zoning ordinance is now contemplating its radical amendment by reducing the classes of industrial use districts to a maximum of five.

The classification is the substance of every district, the district merely bounds the classification. Once accepted, therefore, a classification almost must be continued, as any vital modification in its provisions would practically necessitate a general rearrangement of the districts.

### Classes of Use Districts

Although a zoning ordinance should have a simple classification, it should not sacrifice needed protection for simplicity. This seems to be the main characteristic of the Alameda and Los Angeles ordinances. These ordinances provide only two classes of districts. In the residence districts the businesses not especially excluded are permitted; in the industrial districts all kinds of business and industry are unrestrained. Neither of these ordinances protects residence streets from stores, nor business streets from large factories or nuisance uses.

The New York resolution in establishing three classes of districts supplies both of these omissions.[1] The residential districts exclude all kinds of business and industry; the business districts all kinds of large manufacturing establishments and nuisances. But the New York classification is weak in one respect, it does not afford sufficient protection to manufacturing. If a factory requires more than 25 per cent of the floor area in a building, or a floor area in excess of the lot area, whichever is the greater, it is forced into the unrestricted district containing all kinds of nuisances.

To put manufacturing establishments and nuisance uses into the same classification thus is apt to produce many unhappy compromises, as every unrestricted district will be the result more or less of a balance struck, on the one hand, between the just claims of the district for factory development, and, on the other hand, the protection demanded by neighboring residence and business districts against nuisances. In some cases nuisances will be allowed where they will do great harm for no better reason than that the locality is naturally a manufacturing district; in other cases, factories will be prohibited on the ground not that their admission is undesirable, but because the nuisances that

[1] It is a question whether it is not best to establish an administrative board to moderate and ameliorate the rigor of the law in exceptional cases, as is done in New York by the Board of Appeals, than to make the classification itself elastic. No matter what care is taken in framing the ordinance, instances will be found where the application of the strict letter of the law will work unnecessary hardship.

[2] The experience of Minneapolis illustrates this point. The establishment of the first twenty industrial districts there resulted in twelve different kinds of districts. Only three of these combinations were duplicated—two, three times; and one, five times.

[1] For an account of the experience under the New York resolution, see articles by present writer on "How Zoning Works in New York," *National Municipal Review*, May, 1918; "The Non-Conforming Building in Zoning," THE AMERICAN ARCHITECT, November 13, 1918; "Zoning and Reconstruction," THE AMERICAN ARCHITECT, December 25, 1918; "Zoning the Billboard," THE AMERICAN ARCHITECT, February 19, 1919.

might slip into the district with them would prove a serious menace to adjoining districts. The proposed Philadelphia and St. Louis ordinances in creating four classes of districts—residence, business, manufacturing and nuisance—are in this respect a distinct improvement over the New York resolution.

### Exclusion of Residences

A special feature of the Berkeley ordinance, and of the proposed Fresno ordinance, is the exclusion of residences from the heavy manufacturing districts and the nuisance districts. This plan has many distinct merits. The very reasons that make it desirable to exclude factories and nuisances from residence districts apply with equal, if not greater, force when it comes to prohibiting the erection of new dwellings in districts set aside for industrial development. If it is unhealthful for people to live near a factory isolated in the residence district, it is all the more unhealthful for them to live in a home isolated in the industrial district. To permit residence buildings in factory districts, moreover, tends to increase the size of these districts beyond their natural requirements, as the area included in this classification must also make provision for the erection of a considerable number of dwellings.

Mixed buildings furnish the real reason for zoning. The success of zoning is to be judged to a very great degree by the completeness with which it segregates different kinds of buildings. This segregation cannot, of course, be perfected unless exclusion is applied to one class of buildings as well as to another. But in considering the present advisability of excluding residences from industrial and nuisance districts, it may be well to recall that much which is even rudimentary in zoning has not as yet been sustained as constitutional by the courts. Until such vital parts of the zoning program as the exclusion of stores from residence streets have been favorably passed upon by the courts, the most deliberate caution should be exercised in extending the scope of the regulations.

How many classes of industrial districts is a question which cannot be settled by the application of theoretical principles. It must be decided after a careful examination of the facts in each case. The deciding factors will, however, most generally be: (1) the heterogeneity of the existing and prospective development; and (2) the degree to which different types of development have interpenetrated one another. A small homogeneous community may find it necessary to establish but one industrial district, an unrestricted district embracing all kinds of business and industry. More complex communities may, on the other hand, demand two, three, four or more classes of industrial districts. The number should, however, in every case be kept down to the smallest working minimum essential to the performance of the primary objects of the plan.

### Number of Districts

With a simple classification, no worthy object will be served by keeping down the number of districts. A multiplicity of districts is not something in itself to be discouraged, provided the districts are well selected. Indeed, several small districts may prove preferable to one large one, as they can be made to conform more nearly to the existing or immediately prospective development as well as to promote a more uniform type of development. Industrial districts larger than the area demanded by the least restricted class of buildings in the district are apt to result in a very mixed development. The buildings belonging to the more restricted class would perhaps in most instances be better served if segregated by themselves. It is an open question, therefore, whether the general policy in drawing the district boundary lines should not be to limit the extent of the less restrictive classificatin, each in its turn, to the smallest practicable area.

### Distribution of Districts

The form which factory districts, as distinguished from business districts, should assume—whether they should be confined in the heart of the city, dispersed to the suburbs, segregated in concentric zones, laid out along lines radiating from the center, arranged in parallel districts bisecting the city, or discriminately scattered throughout—is one which has as yet not been satisfactorily answered. If one of these methods of distributing factories is more satisfactory than another, the fact has not been conclusively demonstrated. Such industrial surveys as are available do not enable one to say which type or types of districts produce the best results. It may well be that there is no *most satisfactory* method, that the most satisfactory method varies for different trades and industries and under different conditions, and that the most satisfactory method in one community is the least satisfactory method in another community.

### Zoning and Decentralization of Population

Industrial zoning as applied to factories has often been advocated with a view to effecting a decentralization of population, it being supposed that a judicious distribution of factories would at the same time prevent a piling up of the workers in congested tenements. If manufacturing were to be accommodated in the purlieus of the city—and this to a certain extent can be realized, for only those in-

dustries which are engaged in manufacture for the local market need be near the business center—each establishment would no doubt in time become the center about which an increasing number of its operatives would seek to live, but this would not in itself solve the problem of land overcrowding.[1] Without drastic regulations effectively limiting the number of families that could be housed per acre, it might only serve to create new congested centers, worse than the old, in the outskirts of the city.[2] The way to limit congestion of population is to limit it, and this, it seems increasingly clear, can only be done by prohibiting more than a given number of families from inhabiting a certain unit of ground.

To scatter the factories for no better reason than that many factories assembled at one place will require a large number of employees is to ignore some of the fundamental facts in the case, as a decentralization of a city's industrial development does not necessarily mean a zoning of workers by place of work. In the first place the different members of a workman's family work in different places. If the head of the family lives where he can walk to his work, will not his daughter who clerks in a department store, or his son who keeps books in a downtown office, have to ride? In the second place, small industrial areas can be used intensively, especially when occupied by light manufacturing. In New York there are blocks improved with loft buildings accommodating more than 5,000 operatives.

Is not the answer to the dilemma that intensive industrial development is no excuse for a congestion of population, that a decentralization of population can go hand in hand with a concentration of industry? Factory centers, like business centers, must have convenient transportation. If there are many workmen employed in one place, it is not essential to house them on the same area which a smaller number would inhabit more sparsely. Through the construction of transit lines the housing area can be enlarged to such an extent that each family will still live in good surroundings.

### Changes in Districts and Classification

Action affecting changes in the districts or the classification should be taken only after a most deliberate examination of the facts. After a section has once been subject to certain restrictions a change in the regulations cannot be made without due regard to the effect that the ordinance has had upon the development of the locality. In time it will, of course, become increasingly more and more difficult to make changes of this character without violating the interests which have come into being on account of the plan. Here is a district where certain buildings have been erected which, but for the protection afforded by the regulations, would never have been constructed; there is a district where certain buildings have been prevented from being erected which, but for the restrictions imposed by the ordinance, would have been built. A change in the restrictions will leave neither of these districts in the position which they would have occupied but for the adoption of the law.

### Local Conditions Must Be Considered

The shape, size, location and distribution of industrial districts, as well as their classification, must be determined, not by theory, but by a careful consideration of the concrete facts in each case. The presence of rail and water terminals, the size of the block and lot unit, the width and grade of streets, the character of the existing development, in fact, practically everything connected with the physical plan of a city have to be taken into account and thoroughly studied and analyzed in framing a constructive program for industrial growth. That such a program for future development is essential in every city cannot be questioned. For years the pecuniary losses suffered on account of unregulated building in certain sections of New York have not only equaled but exceeded those suffered from fire. Investigation might show that this statement of facts was true of the metropolis as a whole. The city that does not protect its citizens against fire is generally considered derelict in its sense of public duty. The same is rapidly becoming true of the city that does not protect its citizens against unregulated building.

[1]Different surveys show that the proportion of employees living within walking distance of their work increases with the length of time that the industry has been established in one place. See Report on Detroit Street Railway Traffic and Proposed Subway, 1915, p. 7. Also Report of Chicago Traction and Subway Commission, 1916, p. 246.

[2]For a description of how far congestion can proceed, see report prepared by present writer on "Land Overcrowding in Brooklyn," 1916, Tenement House Committee, Brooklyn Bureau of Charities.

## Book Review

Applied Mechanics, Vol. II, Strength of Materials. By Charles E. Fuller and William A. Johnston, Professors of Theoretical and Applied Mechanics, Massachusetts Institute of Technology. Full cloth, 556 pages, size 6 x 9, illustrated. Price $3.75 net. John Wiley & Sons, Inc., New York.

This work was prepared primarily for the use of engineering students, and is in no sense elementary in its scope. As a preparation the reader of this work should have a knowledge of differential and integral calculus, the principles of statics and dynamics and the methods of determining centers of

gravity and moments of inertia of areas and solids. Considerable attention has been given to the logical development of the subject, and care has been taken to point out the limitations of the different theories, emphasis being laid on the divergence of the conditions met in practice from the ideal conditions, under which the theoretical formulas are deduced, and on modifications necessary or advisable when the formulas are used under ordinary working conditions.

The fifteen chapters treat of the physical properties of materials, analysis of stress and strain, uniform stress and uniformly varying stress, stresses in beams, deflection of beams, continuous beams, combined stresses, general theory of flexure, columns, shafting and springs, curved bars, arches and catenaries, cylinders and plates, and reinforced concrete beams and columns.

This book will be a valuable acquisition to the library of the technically trained architect and engineer as a reference work to be used in the solution of many of the problems that often demand their attention.

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AUTOMATIC SPRINKLER PROTECTION, by Gorham Dana, Boston. Full cloth, 456 pages, size 5 x 8, illustrated. Price $3.50. John Wiley & Sons, Inc., New York.

This book is based on a series of lectures delivered by Mr. Gorham Dana, Manager The Underwriters' Bureau of New England, before the Insurance Library Association of Boston. The fifteen chapters treat of the history of the development of the automatic sprinkler. The first three chapters devoted to perforated pipes, early automatic systems and sprinklers and the later developments in automatic sprinklers. The succeeding chapters are devoted to tests and characteristics of sprinklers, installation rules, layout of equipments, alarm valves, dry valves, sprinkler supervisory systems, maintenance and fire record, sprinkler leakage, automatic sprinklers as a protection to life, combined heat and sprinkler systems and the sypho chemical sprinkler system. The chapters on Combined Heat and Sprinkler Systems and Sypho Chemical Sprinkler Systems describe new developments and appear only in this, the second edition of the book. In the appendix a list of over 250 sprinkler heads are described and rated and a summary of 6277 tests on 61 different kinds of heads, corrected to April, 1918, is included. The form of a standard report blank for inspection by the assured is given.

This book appears to be written for a diversified class of readers and not specially for any one class. Much space is given to records of performance and other data to justify the use of such apparatus. This gives the book a flavor of promotion propaganda which is as well taken care of by other agencies and which the reader, seeking data on which to base design and selection of equipment, has no need for in a book of this kind. The use of a sprinkler system is governed by a desire to have one or by the compelling force of insurance rates or municipal regulations. On this basis a book should be prepared to furnish the technical data needed to design such layouts, install and maintain them. Unfortunately the use of this type of apparatus is restricted in so many ways that there is no competitive choice of the working parts and a book limited to them would be much smaller than this one. The description of the discarded and badly designed heads will be of interest to an inventor, as it is an historical museum, but of no interest to the engineer or architect who is designing such an apparatus for a building.

The chapters on the combined heat and sprinkler systems and the sypho chemical sprinkler systems describe late adaptations and are of interest. The book is probably the best of its kind at present available.

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HANDBOOK OF MATHEMATICS FOR ENGINEERS, by L. A. Waterbury, C.E., and G. A. Goodenough and H. H. Higbie. Third Edition, revised and enlarged, 278 pages, illustrations and tables. Morocco, $1.50 net. John Wiley & Sons, Inc., New York.

This book, of vest-pocket size, is intended as a reference book for the use of those who have studied or are studying the branches of mathematics usually taught in engineering courses. It is not intended for a text book, and does not, therefore, attempt to prove many of the formulas which are given. It is a handy reference book for the engineer who wishes quick access to formulas that are not usually memorized. The book covers the field of mathematics, theoretical mechanics, mechanics of materials, hydraulics, heat engineering, electrical engineering and tables.